PETROLEUM WEEK

JANUARY 13, 1956

■ A McGRAW-HILL PUBLICATION

Industry Trend!

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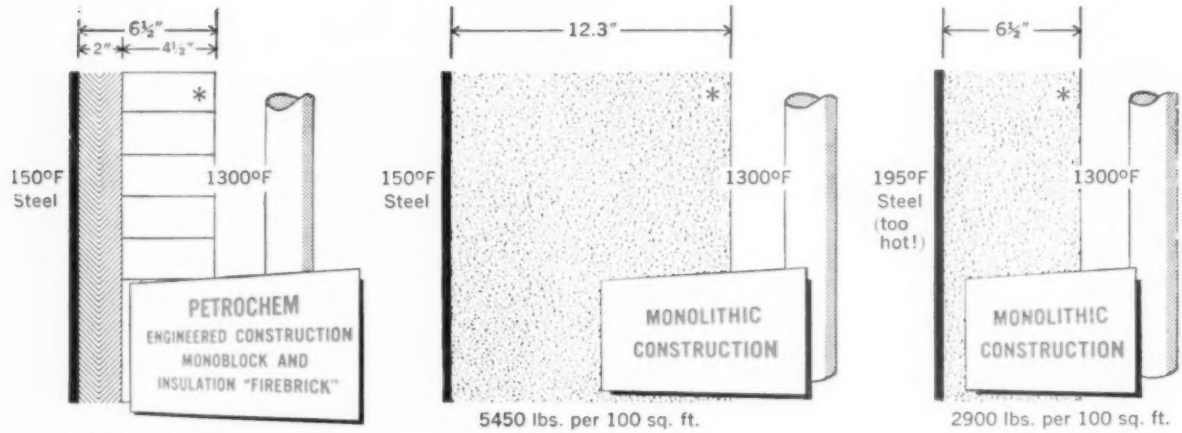

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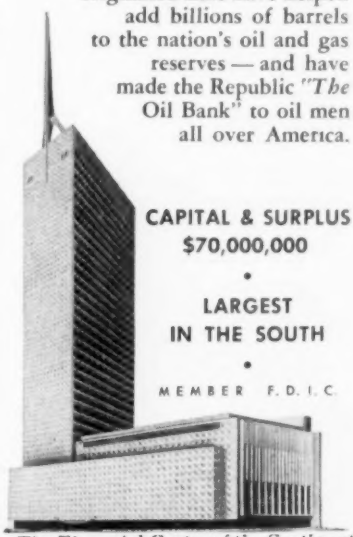

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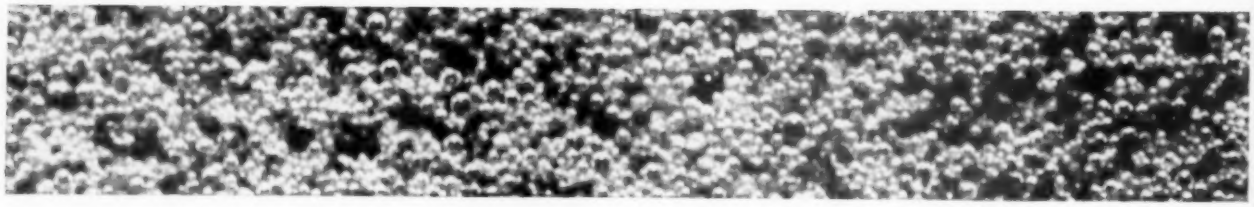

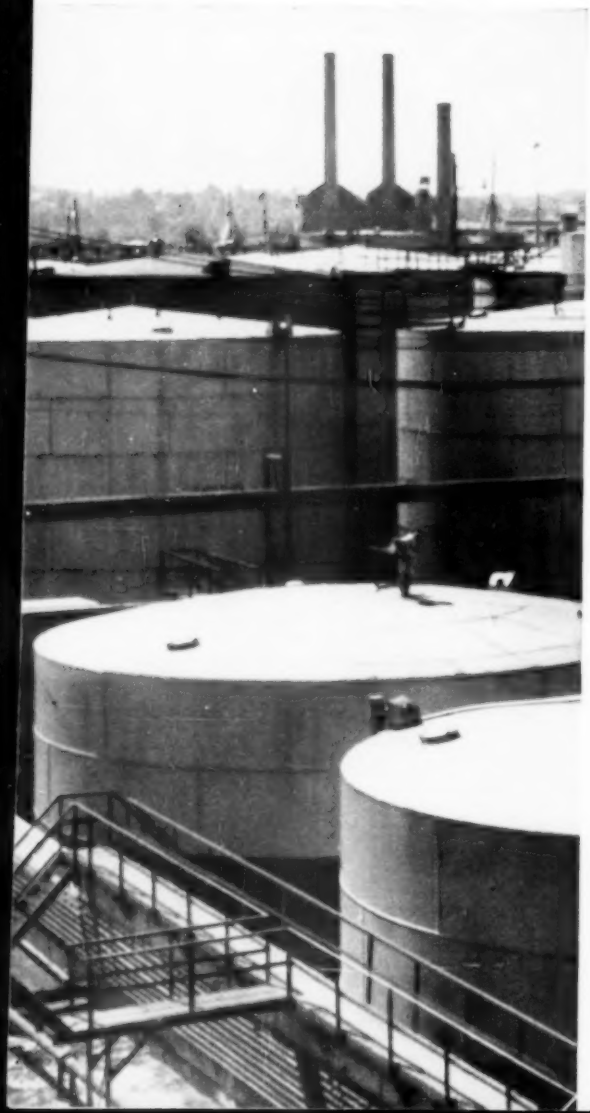

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60-Second Summary / WHAT'S HAPPENING IN OIL

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January 13, 1956

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Another 11 ft. has been added to the world's drilling depth record. After a cave-in at 22,559 ft., the well was reamed to 22,570 ft. in order to go through a sand. Tests will be made of sands at 22,255-385 ft., 22,515-19 ft., and 21,535-85 ft.

•

There's a growing rush by oil firms to buy oil wells instead of drilling them, because oil is getting harder to find and drilling costs keep rising This was demonstrated in the vigorous efforts of several companies to buy Houston Oil Co.'s producing properties. Atlantic Refining Co. won out last week, and will acquire Houston's 17,000 b/d crude output and its reserves. . . . p. 12

•

A small group of "undecided" senators hold the key to the outcome of the gas bill. Proponents and opponents are almost evenly divided, thus leaving the fate of the legislation in the hands of those who are keeping mum on how they'll vote in the approaching showdown. . . . p. 11

•

Oil company securities are likely to have a good year in the stock market. A Wall Street broker thinks oil stock prices haven't yet caught up with the bright oil outlook created by increasing domestic and foreign demand. . . . p. 36

•

Proration, which once rescued Texas oil, is continuing its spread. Colorado and California are considering conservation laws now (page 9). The move gained impetus this week as Shell and General Petroleum announced support of Richfield's move for a unitization rule in California.

•

Some progress is being made in licking the problems involved in drilling in California's offshore area. Pollution-minded citizens have made the laws tough. And the depth of the water—up to 300 ft.—makes it even tougher. But two companies have their feet wet, and others show interest. . . . p. 14

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Disposal of government-owned synthetic rubber facilities will be investigated by the Senate Banking Committee. Its chairman doesn't think the government got its money's worth. Special attention will be paid to the tentative sale of the Institute (W. Va.) plant to Goodrich-Gulf.

•

Interest by U.S. firms in oil exploration in Italy has taken a sudden nose-dive. The reason: Italy is considering a law so restrictive it removes the welcome mat. It's a lesson in how a government can help or hurt. . . . p. 20

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Watch this corner: tires made from butyl rubber. Research indicates they'll far outlast synthetic or natural rubber tires. . . . p. 34

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau

January 13, 1956

The President's new program spells promise—and problems—for oil. The silver lining shows up most in the promise of more prosperity.

Eisenhower's State of the Union message shows a determination to keep the economic trolley on the track, even if the government must help out. Look at the call for construction of new housing, schools, and roads, and his effort to let farmers share in the boom. All this adds up to a high-stepping economy and a busy year for every segment of the oil industry.

The President's silence on natural gas legislation renews fears that he hasn't really made up his mind. Industry strategists are prone to assume Eisenhower will sign the Harris-Fulbright legislation to ease federal control over producers. And opponents of the measure admit an endorsement from the President would clinch passage by the Senate (page 12). But Eisenhower will be under severe pressure from some consumer-state Republicans to stay aloof—or even to veto the bill.

•

Solution of the highway-financing problem is left to the Democrats. The President renewed his call for an ambitious road-building program, and insisted there "must be an adequate plan of financing." But he left the details to Congress. Democratic pay-as-you-go highway legislation, with road-user taxes handled in a separate bill, will be introduced this month. House leaders hope for floor action by March.

"A taxless" highway bill will get oil backing. This is the plan pushed by Rep. T. A. Thompson (D., La.). He proposes a $10-billion program spread over 10 years, but warns that a modest start is advisable to avoid shortages and skyrocketing costs. The Treasury Dept. would foot the bill from present revenues.

•

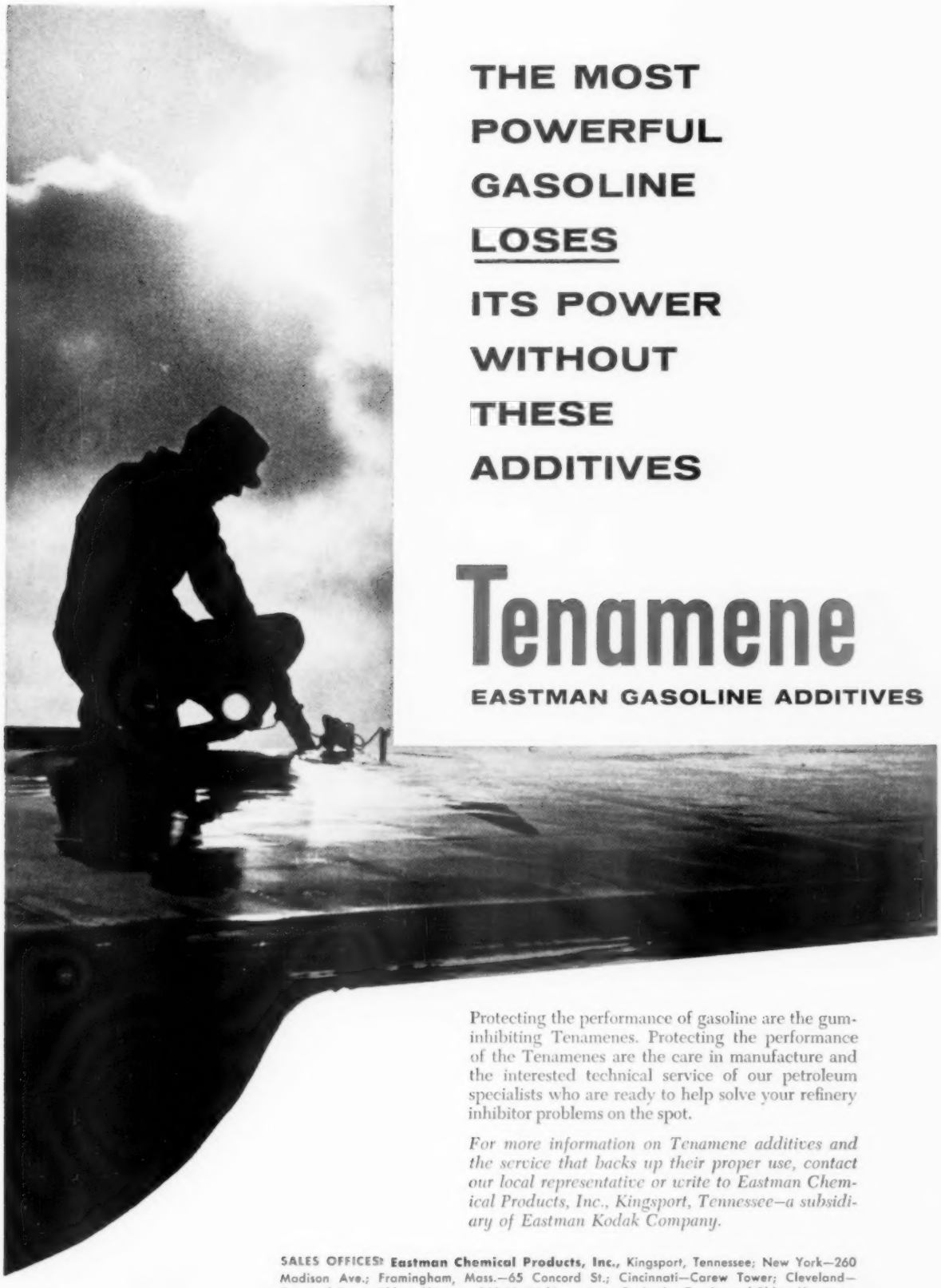
There's new pressure for another look at trade restrictions, based on a possible new concept of national defense. The House-Senate subcommittee on foreign economic policy says the maintenance of a mobilization base is not so important in the age of nuclear warfare, when the shooting may be over within 30 days. This line of thinking clashes with the arguments that the domestic industry must be protected from excessive imports so we'll have a dependable supply of oil in wartime.

•

FTC will move soon against overriding commissions collected by major oil companies on sales of tires by rubber companies to independent gasoline retailers. Congressional antitrusters hear that the Federal Trade Commission will file a complaint within the next few days challenging this practice, under which oil suppliers allegedly receive a commission for persuading their dealers to handle a specific TBA line.

•

The airport picture is bright for asphalt-makers. Industry representatives had feared the old controversy over asphalt's resistance to blast, heat, and spillage in the jet age would be reopened at a conference called by the Civil Aeronautics Administration. But CAA officials say they're still sold on use of asphalt in "critical" areas of airports.



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Freflo is a mixture of several oil-soluble chemical agents. These agents are designed to: reduce the surface tension of the water, lower the interfacial tension between the water and the oil, and break or prevent emulsions. Also, Freflo has proved effective for dissolving asphalt and paraffin deposits.

You'll find Freflo is easy to apply and requires no special well equipment or preparation. Just mix Freflo with diesel oil or fresh, high-gravity crude, then pump the solution into the formation. Or, if you wish, Dowell will do the job for you. One 10-gallon drum of Freflo will make 1000 gallons of treating fluid. The average treatment consists of about 20 gallons of Freflo in 40 to 48 barrels of oil.

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DERRICK "FOREST" at Burkburnett field of East Texas typified type of waste that fathered proration in the early thirties. Now . . .

Proration Moves Toward Maturity

Proration and conservation of oil and gas seem on the verge of major new gains. Last week Colorado took steps to add legal muscle to oil conservation. And in California, an oil company moved to win voter approval of an oil conservation law.

In Colorado, Gov. Ed Johnson called on the legislature to grant more authority to the state's Oil & Gas Conservation Commission in order "to prevent great waste of oil and gas in the Rangely field." He added that a "real emergency exists and all is chaos at Rangely."

The problem developed after the commission ordered reinjection of gas at the Rangely field. But field operators rejected the commission order and continued to flare gas. Their action followed a state Supreme Court ruling last May which held the commission has no authority to require reinjection.

And in California, Richfield Oil Corp. took the first step toward a possible new oil law when it filed an initiative measure with the state's Attorney General. Primary feature of the proposed law is a provision which will allow an oil pool to be put under unit operation through an agreement of 75% of the operating and royalty interests in the field. The law would set up a three-man commission which would approve or disapprove such unit agreements, and enforce minority compliance.

In addition, the commission would have authority to establish well spacing patterns in pools discovered after the law goes into effect. The law has been carefully drawn to avoid any restriction of oil production. Regulation of production would be on the basis of maximum efficient recovery, and would be agreed to by operators in a production unit.

California producers are sharply divided on the issue. Opponents view it as another step toward regulation of the industry and as an infringement of property rights.

If passed, the measure will be California's first conservation law. The state legislature passed conservation laws in 1932 and in 1939, but both were defeated in referendum votes.

Both included the restriction of production based on market demand. Last year's legislature passed a law that gave legal sanction to activities of the Conservation Committee of California Oil Producers. But conformance to the "allowables" set by this group is voluntary.

These bi-state developments point up the growing acceptance by all segments of the petroleum industry of the conservation philosophy underlying proration. Then, too, everyone realizes that proration is a major factor in preventing violent ups and downs in prices.

The basic aim of proration is the optimum recovery of crude oil. It is generally considered to be a system whereby oil production is restricted to slow the rate of pressure loss in the reservoir. This results in higher production spread over a longer period of time.

There are many forms of oil conservation, or proration, in effect. They range from strict, compulsory laws to voluntary, informal agreements. But they all have one prime objective: conservation. And by limiting the amount of crude produced, proration has prevented the price-depressing

gluts on the market which were so familiar before the 30s.

In its early days, the East Texas field produced nearly 1-million bbl. of crude daily—at 10¢ a bbl. Its producers now get $2.85 a bbl. for approximately 225,000 bbl. of crude daily. That's a seven-fold boost in total income for just one-fourth as much crude oil.

Ernest O. Thompson, senior member of the Texas Railroad Commission, has been a leader in the drive for proration. "Under proration conservation," he says, "Texas has doubled its oil reserves and increased its gas reserves."

Lt. Gen. Thompson (he's commander of the Texas National Guard) has taken an active role in developing every step of the state's proration system since its inception. In citing accomplishments of proration in Texas, Gen. Thompson adds:

"We have constantly improved our outlet for oil, increasing daily production from 740,000 bbl. in 1935 to 2,700,000 bbl. in 1955. And now every well gets its fair share of the market. All are taking ratably. There is no shut-in field. In the old days, you sometimes could get a market for your oil only if you could truck it."

In the early days of oil, waste and overdrilling marked nearly every field. This reached a chaotic climax when the East Texas field was discovered in September, 1930—paving the way for Texas' first conservation law the following year.

The Texas Railroad Commission, set up primarily to regulate transportation, sought to bring some order to the fantastic over-development by issuing an order limiting output of the field. But the commission's efforts met with the proverbial storm of protest. Many of the operators ignored it; others brought injunction suits.

The situation reached a crisis in August, 1931, when Gov. Ross S. Sterling called out the National Guard to stop threats of rioting and disorder brought on by the excessive production in East Texas. The troops set up a large camp at "Proration Hill," near Kilgore, to assure compliance with the governor's order shutting down all oil and gas wells in the area. The armed troops had a sobering effect on recalcitrant operators—and the commission's orders were enforced.

Since then a series of bitter court tests has established this principle: Production in excess of market demand—or in excess of the maximum efficient rate of production—is wasteful.

The first Texas conservation law, in 1931, specified that market demand would not be considered in prorating production. But in 1932, the U.S. Supreme Court upheld Oklahoma's market-demand statute. So the Texas legislature wrote market demand into its conservation act. Through the welter of many court tests, it became increasingly clear to oil field operators that too much oil above ground not only undermines the price structure, but also results in losses through evaporation and contamination, and creates health and safety hazards.

Conservationists also were aided by an executive order, issued by President Franklin D. Roosevelt, forbidding railroads to carry into interstate commerce any petroleum produced in violation of state conservation laws ("hot oil"). With this help, later written into an act of Congress, regulation by state commissions became truly effective.

The value of proration was strongly underlined in World War II, when 80% of the increased U. S. oil production came from Texas. "With this understanding of the true importance of proration to the progress, prosperity, and security of the nation," Railroad Commission Chairman William J. Murray, Jr., says, "it is possible to evaluate more accurately the significance to the nation and to the world of proration in Texas.

"Had we not practiced market demand proration prior to World War II, there would have been no reserve producing capacity upon which we could draw for our expanded needs."

Six states have followed Texas in setting up strict market-demand proration systems. But Texas remains the balance wheel of the industry, and proration is the hub of this wheel.

Commissioner Murray points out that "Texas is the largest oil producing state, with nearly half of the nation's total production. Since market-demand proration has been much more carefully adhered to in Texas than in any other state, Texas has come to serve as a balance wheel for the entire nation.

"Many of the other states produce at relatively constant levels. When there is an unexpected increase in peacetime demand for petroleum, such as is occasioned by the abnormally cold winter or an unusually high summer gasoline demand, it is Texas which is always able to meet this increased demand. Similarly, when there is a reduction in demand, and crude stocks begin to accumulate, it is Texas which makes the major reduction."

Texas holds this prominent position in the world's petroleum picture despite the fact that it now has less than 15% of the world's known oil reserves.

The other states which have strict market-demand proration laws are Oklahoma, Louisiana, Kansas, New Mexico, North Dakota, and Michigan.

It's little wonder, then, that the Texas Railroad Commission, as administrator of the state's proration system, holds such power and prestige in the oil industry.

The commission allocates production among more than 161,500 wells in more than 5,000 fields. In setting monthly allowables, or permits to produce, the commission takes into account purchasers' "nominations" to buy oil in the state, and other factors. These other factors include imports, the U.S. Bureau of Mines' estimate of demand for Texas oil, and national level of crude and products stocks.

Success of proration in Texas and elsewhere has discredited the "more

States with strict market-demand proration.
States with some less-strict form of proration, or production limitation.
Oil producing states with no proration of any kind.

wells, more oil" philosophy so prevalent in the madcap years of unrestricted drilling.

Some producers who fought proration 25 to 30 years ago now admit it has been a blessing to the industry and the public. Instead of the forest of derricks which marked East Texas and earlier fields (picture, page 9), development now is on patterns of one well to 20, 40, or even 80 acres.

Of the 26 producing states in the U.S., 14 now have some form of proration, legal, or voluntary (map).

Some Texas producers have complained that other states do not share in reduced allowables to the extent that Texas does. Olin Culberson, third member of the commission, maintains that, "We have been holding an umbrella over other oil-producing states. I am opposed to this. We've lost markets through our umbrella holding."

Some states, like Mississippi, prorate upon a basis of ability to produce, restricted only by waste prevention. Colorado and Wyoming have waste prevention laws, but do not consider market demand in fixing allowables.

Utah and Montana recently passed laws similar to those existing in Wyoming and Colorado, though there are some producers who would question the existence of any effective proration in these states. Arkansas does not have a market demand law, but its regulatory agency has declared excessive storage to be wasteful.

Conservation also is promoted by the Interstate Oil Compact Commission. The compact, however, does not regulate production—it serves primarily as an information-exchange center.

Most of the oil producing states belong to the commission, which was set up by an act of Congress, following a suggestion by President Roosevelt in 1933.

Proration, which has proved so successful with oil, is just beginning to be applied to natural gas.

Louisiana already has set up ratable-take orders for its natural gas production (PW—Dec.2'55,p13). It's likely the Texas commission will move this year in the direction of proration of natural gas. The problem of distributing the market demand for Texas natural gas among all the wells in the state, however, is much greater than for oil.

But the Texas officials feel that natural gas regulation now is more advanced than was that of crude oil two decades ago, and much more is known about the regulation procedures. The only questions are how and when—not if.

Gas Bill Showdown at Hand

The long-awaited showdown over natural gas legislation is near at hand, with the outcome hinging on senators who aren't saying publicly how they're going to vote.

There are differences of opinion over how many are still uncommitted. Some say 3. Some say 30. A PETROLEUM WEEK survey this week produced this box score: For the Harris bill, 40; against, 34; doubtful, 22.

Both sides agree that the outcome is a tossup, and neither claims a victory with any show of confidence. Here are some sample attitudes:

- "The picture is very uncertain," said Sen. Hubert Humphrey (D., Minn.), a leader of the opposition. "We have an uphill fight to beat the bill, but the proponents don't have the 10-vote margin they were claiming last summer."
- "I think the outcome may be decided by a margin of one or two votes," said Sen. A. S. Mike Monroney (D., Okla.), who will lead the floor fight for the legislation.
- "It's so close we can't afford to take a chance on losing even one vote by sounding too optimistic or too pessimistic," says a major oil company official. "It's too ticklish to talk about now that we're so close to a showdown."

Because of so much uncertainty, attention is focused on 22 "doubtful" senators: George and Russell (Ga.), Dirksen (Ill.), Hickenlooper and Martin (Iowa), Beall and Butler (Md.), Saltonstall (Mass.), Thye (Minn.), Murray and Mansfield (Mont.), Langer and Young (N. Dak.), Bricker (Ohio), Martin (Pa.), Johnston (S.C.), Aiken and Flanders (Vt.), Byrd and Robertson (Va.), and Kilgore and Neeley (W. Va.).

Some of the doubtfuls may be holding back for bargaining purposes. Several coal-state senators, for example, are seeking to get legislative restrictions on the industrial use of natural gas. If they could get this, they would vote for the bill to free gas producers from direct federal control.

Seven of the doubtfuls are facing reelection this year in states where there does not appear to be a clear-cut public sentiment either for or against the gas bill. So these senators obviously wish to keep out of an open controversy.

Despite the tension, there is no indication that the legislation will be sidetracked or that it will be filibustered to death. Backers won a significant victory when the Democratic Policy Committee agreed unanimously to schedule the measure for action in January. And Sens. Wayne Morse (D., Ore.) and Humphrey—leaders of the opposition—have said publicly they would not resort to the filibuster.

The strategy of the battle shapes up like this: Proponents will open the debate and will move to make the Senate and House versions identical. This can be done by amending the Fulbright bill (which was opposed in the Senate) or by substituting the Harris bill (which was passed by the House last year). Backers will then fight any effort to amend the bill further, because any change would send it back to the House where it is doubtful it could pass again.

Opponents will concentrate on getting amendments to force it back to the House. Sen. Paul Douglas (D., Ill.) is said to have at least three amendments in mind. They would:

- Exempt small producers from regulation, leaving large producers under federal control.
- Change the provision treating pipeline-produced gas the same as gas produced by independents.
- Require the Federal Power Commission to set a "just and reasonable" price, as used in utility-regulation terminology, instead of the "reasonable market price" specified in the Harris and Fulbright proposals.

Debate is expected to last for three weeks or more. Several senators are determined to make long speeches in hopes of arousing public opinion against the bill.

Proponents are also expected to do some lengthy speech-making to show that the proposed legislation would still protect the consumer while giving the producer freedom from direct, crippling federal regulation. They will bear down, too, on the fact that only a small percent of what the consumer pays for gas goes to the producer.

There will be emphasis on the claim that discovery of new gas reserves already has been slowed by federal regulation, and that continued regulation means a short supply of gas and higher prices to the consumer in the long run.

Stakes in the battle are high. The producer effort to throw off the yoke of direct federal control began shortly after the U. S. Supreme Court held, in the Phillips case, in 1954, that producers selling in interstate commerce are subject to regulation under the Natural Gas Act of 1938.

Atlantic's Henderson Supplee

Houston Oil's Harold Decker

PURCHASE of Houston Oil Co.'s oil and gas properties by Atlantic Refining Co., negotiated by the presidents of the two companies (above), illustrates important reasons why . . .

Shopping for Wells Gains Favor

The hunt for purchasable oil production is on in earnest. A big winner last week was Atlantic Refining Co., which won the race to acquire Houston Oil Co.'s prize 17,000 b/d of crude output, plus its large reserves.

Approval by Houston stockholders of the $224-million agreement will give Atlantic all of Houston's oil and gas properties—after Houston has disposed of its timber and paper interests.

The half-dozen also-rans in the bidding for Houston's holding—including Sinclair, Sohio, and Petrofina (the Belgian company)—will now have to look elsewhere for oil wells to buy. They'll have plenty of company.

Rising demand is complicating the crude supply problem of some refiners. These companies are finding it is often cheaper to buy production than to drill for it. That's because exploration crews are finding the going tougher in the U.S., and drilling costs are rising. And restrictions on crude imports are making it impossible for domestic refiners to take up the slack by importing more foreign oil.

This year the big companies will be spending record sums on their own exploration and drilling efforts. But few will be able to find all the crude they want. As a result, 1956 could see a rash of acquisitions.

Signs of a trend appeared last year in Sinclair's purchase of American Republics Corp., Continental's purchase of Kirby Petroleum Co., and many smaller acquisitions by refiners.

Now 1956 is off to a fast start. In addition to Atlantic's deal, Colorado Oil & Gas Corp. last week announced it will be boosting its crude production by 1,500 b/d through the purchase of Lawton Oil Corp., Magnolia, Ark. Colorado Oil is the parent of Derby Oil Co., which has a 16,000 b/d refinery at Wichita, Kans.

Another example: Union of California last week bought 12 producing wells (250 b/d total) near Maricopa, Calif., from Obispo Oil Co.

The smaller producers with good reserves are finding buyers among other, expansion-minded, producers—as well as among refiners. The tax situation encourages these sales.

Typical production deals in California last week: Verdi Development Co. paid $500,000 for leasehold interests of Jansen & Associates in Ventura County. The agreement covered 330 b/d of crude production, plus net proven reserves of 1.3-million bbl.

And Crestmont Oil Co., Burbank, hiked its gross oil production by 250 b/d, to 1,600 b/d, and its net proven reserves by 9%, to 6.7-million bbl., by acquiring the leasehold interest of Ferguson & Bosworth, in Kern County.

Atlantic's purchase of Houston Oil is typical of the way some refiners will be trying to combat the squeeze on profits resulting from the lack of owned production. In explaining Atlantic's decline in net earnings (down 8% for the first nine months of 1955), the company's president, Henderson Supplee, Jr., said: "The most important single factor of higher expense was a substantial increase in the costs of developing new sources of crude."

Atlantic's problems stem partly from increased crude runs at its Philadelphia and Atreco (Tex.) refineries. The total for the two plants is now 195,000 b/d—up 13,700 b/d from the 1954 level. The company's crude production has been increasing at a much lower rate. In 1953, Atlantic's crude output was 58.4% of its refinery needs. In 1954 this dropped to 55.5%. And in 1955 it was down to 51.6%.

To meet the threat, Atlantic last year pressed its search for crude on the Gulf Coast tidelands, and abroad. But it takes time to find and develop new crude supplies.

The addition of Houston Oil's crude output will boost Atlantic's 101,000 b/d production overnight, thus raising the crude-to-refinery-runs ratio. Atlantic doesn't think the acquisition puts the company in a "satisfactory" crude position. But it calls the purchase "a very nice step in that direction."

If the Houston Oil agreement goes through, Atlantic will become the joint owner, in a mineral deal with Sinclair Oil & Gas Co., of 868,783 acres of oil properties in Texas, Louisiana, and Wyoming.

Houston's gross land under lease totals 696,638 acres, which Atlantic will acquire.

Atlantic will also get Houston Oil Pipe Line Co., the Houston Oil subsidiary that operates 715 mi. of gas pipeline and sells 350-million cu. ft. of gas daily. And Atlantic will take over Houston's interest in Marcy Exploration & Mining Co., which is active in uranium exploration in the Southwest.

But Houston Oil's president, Harold Decker, says the agreement hinges on whether Houston is successful in selling its half-interest in East Texas Pulp & Paper Co., plus its 100% interest in South Western Settlement & Development Corp., a timber company. Houston officials are now negotiating for the sale of these to Time, Inc. (which already owns the other 50% of East Texas Pulp).

The price Atlantic will pay for its new production hasn't been revealed. But it will be high. A measuring stick of the price is the over-all $224-million that Decker says stockholders may "expect to receive" upon Houston Oil's liquidation. This figure includes estimated payments for the timber and paper interests.

Atlantic plans to integrate Houston Oil into its Gulf Coast regional office, headquartered in Dallas. As of now, no changes in management or personnel are planned.

Why did Houston choose Atlantic over the other bidders? Just one reason: Atlantic offered the best agreement.

What's New / IN THE INDUSTRY

West Coast Offers New Crude Line Plan

The fate of a proposed 30-in. crude oil pipeline from Texas to California may be decided within a week. It hinges to a large extent on the replies of West Coast oil firms to an invitation by the West Coast Pipeline Co. to participate.

The request, made in a letter from the pipeline company to 7 majors and 29 large independents in California, is an effort to breathe new life into the plan, which has been hanging fire for a dozen years for lack of adequate financing. The firms were asked to reply by Jan. 15.

The new approach follows a recent reorganization of West Coast Pipeline Co. L. M. Glasco, who has fought a long battle to get the line built, has stepped down as president. He has been succeeded by John B. Mills, a Texas and Arizona oil man.

Mills says that stock in the pipeline company, now held by 40 independent producers, will be made available to West Coast firms if they wish. He says the participation invitation offered two choices:

- Either the participating companies would agree to transport at least 30,000 b/d of their own Texas and New Mexico crude through the line for five years or less . . .
- Or the companies would guarantee to West Coast Pipeline Co. for five years or less the difference in tariff revenue between what the line actually carries and 75,000 b/d. This figure is considered as the minimum break-even point for the line.

The company will also continue to try to get the government to classify the project as "essential" to national defense. This would make it eligible for Treasury Dept. guarantee of construction costs. Up to now, defense officials have termed the project "highly desirable" in wartime, but have not yet said it was essential.

West Coast has named a special advisory committee to press defense officials on this point. Mills himself is planning to testify before a House Armed Services subcommittee later this month.

The proposed line is of keen interest to West Texas producers because it would provide a new outlet for up to 450,000 b/d of crude. California refiners, on the other hand, have been cool to the proposal, apparently feeling that Canadian or Venezuelan crudes offer a more feasible solution to problems arising from any lack of sufficient California crudes.

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Stevenson Views Gas

Adlai Stevenson has indicated a cautious endorsement of some type of legislation to free natural gas producers from the direct federal controls they now face.

Stevenson, in a national TV interview last Sunday, said that, because so many people use gas, the consumer's interest must be safeguarded. But, he said, there would be no point in having a low price if there was no gas. He said care must be taken not to remove the incentive to producers.

On another subject — taxes — the leading Democratic contender for the presidential nomination said he felt rapid tax writeoffs could be eliminated to help raise revenue to offset a tax deduction for low-income individuals.

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Fewer Wildcats Pay

The Texas oil wildcatter has wound up his poorest year since 1943, in the face of heavier demand and increasing crude oil production. French M. Robertson, president of the Texas Mid-Continent Oil & Gas Assn., in a year-end summary, reports that the oil wildcatters had a 90% failure rate last year.

Robertson says gas producers drew heavily on already-discovered reserves to meet delivery commitments, and drilled 1,109 gas development wells, an increase of 102 such wells over 1954. The wildcatting campaign, however, showed only 87 gas field discoveries, compared with 112 last year.

The report states that Texas crude oil production for the year amounted to 1,050,000,000 bbl., a 6.9% increase over 1954. Meanwhile, demand for domestic crude increased 8%.

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Indiana Standard points out that its planned imports from Mexico in the first quarter of 1956 will increase only 2.7%, instead of 5.1% (PW—Dec.23'55,p9). This amounts to 89 b/d on total planned imports of 3,353 b/d for each of the 91 days in the first quarter. The figures are based on the company's November and December imports reports to the Texas Railroad Commission.

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The inside stories of the development of two of the top companies in the oil industry—Jersey Standard and Indiana Standard—are told in two just-published books. The books offer readers detailed and documented histories of the companies' growth into oil industry majors.

"Pioneering in Big Business," by Ralph and Muriel Hidy, is the first of three volumes which will tell the story of Jersey Standard and its affiliates. This first volume is a study of the policies and practices of the executives of the Standard Oil combination during its ascendancy, from 1882 to 1911. It ends with the company's dissolution by the United States Supreme Court in 1911.

"Standard Oil Company (Indiana)," by Dr. Paul H. Giddens, also goes into the early days of the old Standard Oil combine. It starts at the beginning of the Indiana Company—at Whiting in 1889—and traces the company's growth through 1951. Dr. Giddens tells of the famous proxy battle for control between Col. Robert W. Stewart and John D. Rockefeller; production, refining, and marketing advances; and the complex inner workings of the organization as it spanned two world wars.

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Producers will have to set another record in well completions this year if the oil industry is to maintain its ratio of standby producing capacity for emergency needs at the levels that have prevailed in the past two years.

This is the conclusion that can be drawn from the preliminary estimates of 1955 producing capacity released this week by the Independent Petroleum Assn. of America. The study shows that total U. S. petroleum producing capacity (crude oil and gas liquids) averaged 9.5-million b/d last year, an increase of 555,000 b/d over 1954.

IPAA estimates that, of this total, 2-million b/d represented reserve shut-in capacity, a gain of 82,000 b/d over 1954. The ratio of the reserve to total producing capacity last year, however, declined slightly from 1954. Last year's ratio was 21%, compared with an average of 21.4% in 1954.

OFFSHORE AREAS may be drilled now, but legal snarls and operating problems bring ...

Caution on Pacific Front

FIRST OF TWO PARTS

The barrier has long been sprung on the California offshore marathon, but the entries were still poking cautious toes in the chilly surf this week.

Though the Cunningham-Shell Act of Sept. 7 gave the go-ahead to exploratory marine drilling, most signs of activity are still of a preparatory nature. Items:

- Three shallow core boats are operating off the Southern California coast, and at least one other is being readied for deeper operations.
- Standard Oil Co. of California is beginning seismic exploration along a new 250-mi strip.
- Monterey Oil Co. is building a second deck on its drilling island off Seal Beach.
- Richfield Oil Corp. is preparing to call for construction bids on an offshore island.

Thus far, with the exception of Monterey Oil Co. and its partner, The Texas Co., no company has ever got its feet wet in response to a challenge which offers tough problems, bright rewards, and stern penalties.

There are solid reasons for the odd blend of eagerness and reluctance with which the majors view this operation:

- **The problems will be tough** because some of the lands are so deep under water that they cannot be developed by existing devices.
- **The rewards will be bright** because California's leaping population, its buzzing industries, its position as a net importer, and the increasing difficulty and expense of finding onshore oil all combine to offer a hungry market for new production.
- **The penalties will be stern** because of the probable reprisals of a powerful voting group watchful for the first sign of pollution; because of the high cost of drilling a wildcat failure; and because the leasing procedure will either force the operators to pass up tracts they have evaluated at great expense or else bid them in before they have any sound notion of development costs.

The general caution is reflected by the fact that only three requests have been filed under the provision that bidders may request the State Lands Commission to initiate action on specific offshore parcels.

Two of these requests concern a tract adjoining production at Seal Beach (H on map). The state's title to the mineral rights on this parcel are being contested by the City of Long Beach, however, and drilling prospects are dim.

The other request was for leasing of a parcel off Summerland, in Santa Barbara County (G on map). The request was filed by St. Anthony Oil Corp., a small, family-owned company which had sought to bid on this land under the old regulations. The state is advertising to offer the area for drilling, and if all goes smoothly this parcel may become the first oil and gas lease effected under the new state law.

Actually, only a small part of Californias' three-mile-wide marginal belt may be opened to wildcatting (A on map). This principal area extends from Oceano on the north to Newport Beach on the south, and is in fair adjustment with the companies' opinions as to likely areas for prospecting.

Other state-owned lands (B on map) cannot be opened to exploratory drilling, but the state can lease them for development when they are being drained by offsetting production. These same requirements applied to all state-owned submerged lands befor the Cunningham-Shell Act.

The remaining areas (except G and H) are generally closed to drilling because of the fear of despoiling the beaches. An exception is a portion of the Santa Monica Bay area (C on map). The city of Redondo Beach recently voted to allow drilling of its lands (PW—Nov.25'55,p19). Santa Monica voters earlier turned down a similar proposal. But General Petroleum Corp. last month announced intentions of keeping in effect a contract with the city to develop the area "if and when the people of the community approve . . ."

Other exceptions to the law permitting exploratory drilling are the Santa Barbara area (D on map); the Pismo Beach vicinity (E on map), where there is determination to protect the Pismo claim; and the stretch from Newport Beach south to Mexico (F on map), where there is high resolve to guard the beaches.

Legal hitches are partly to blame for the lack of lease requests. And once they're made, lead-footed procedure will delay action.

- The industry still resists a provision which would give the lands commission access to seismic and coring operations data.
- There is a strong doubt as to the title of large areas of state-claimed lands between the mainland and the

offshore islands. The federal government has in the past claimed title to lands outside the three-mile strip along the mainland, and the oil companies don't want to get caught in the middle of another dispute like those in Louisiana and Texas. They have conducted seismic surveys and geologic studies in the clouded area, but they have no intention of leasing there until the title is cleared. The state has been trying for four years to obtain a Supreme Court review of the boundary.

• Three or four months may elapse between the time a parcel is nominated for bidding and the time it is offered for leasing. This lag, coupled with the fact that the lands commission is sparsely staffed and cannot handle more than one or two lease proceedings at a time, indicates

Here's How to Drill From a Floating Platform

Problems of drilling from a bobbing vessel in Pacific waters up to 300 ft. deep are being answered through a host of ingenious techniques.

After anchoring the converted war-time LSM or ex-garbage scow (PW—Dec.9'55,p14), the crew sets casing in the surface sediment.

The casing is run as drill string with teeth welded on the bottom of the pipe. Sea water is pumped down through the casing and back out of the hole into the ocean.

The casing goes down through a guide bucket, which is the bottom anchor of two wire lines used to steer equipment to the bore hole. After it goes several feet into a reasonably solid formation, the surface casing is cemented.

The casing is rotated with an adapter tool fitted to the kelly and containing a cementing plug with a hole in the center.

Water circulates freely through the hole while the casing is going to the desired depth. When the casing is landed, cement is mixed in the mud tank and pumped into the system.

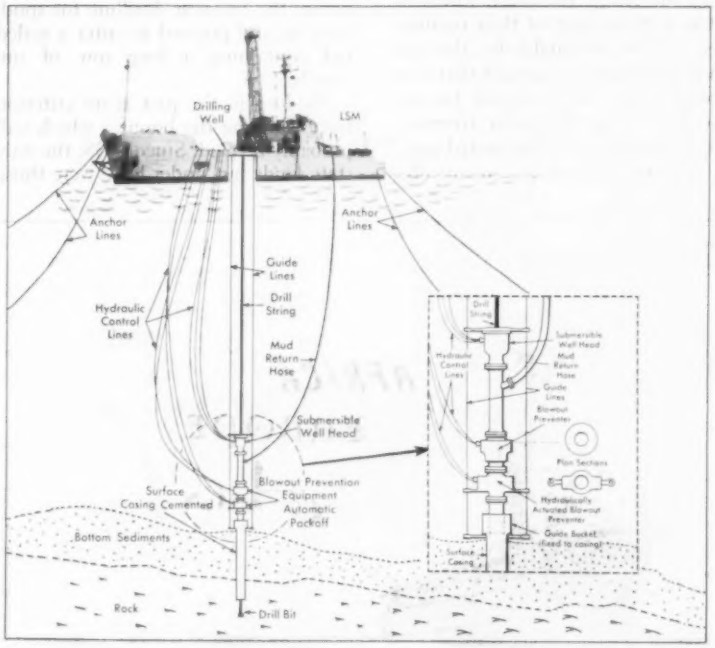
A ball is dropped out of the kelly cock to close the sole in the cementing plug.

Mud pressure shears a retaining pin and pushes the plug down, forcing cement out under the casing and into the annulus.

The special wellhead assembly is lowered on the drill string, steered by the guide wires.

The assembly includes an adapter, which locks it to the casing, and a submersible wellhead—the latter being a completely new tool for underwater drilling. The assembly goes down ready to operate, though the services of a diver may be needed on occasion.

Once the assembly is in place and tested, the drill bit is lowered to the bottom and drilling commences.



The bit brings its own "guide" out of the hole to assure an accurate return.

Backing up, the drilling tool picks up the inner cup of the submersible wellhead, which is fitted with rubber gaskets to prevent the bit from passing through. The inner cup is released hydraulically and rides to the surface. The cup is equipped with arms, which slide along the guide lines on the return trip, thus bringing the new tool back into the hole.

Special joints of pipe with vertical slip sections compensate for the "heave" of the vessels.

Six such joints with 24-in. telescoping sections allow 12 ft. of up-and-down slack, which should be sufficient to keep the bit on bottom in operating weather. The holes may wander a little from the vertical, but not seriously.

Moderate pitch and roll are compensated for by the normal elasticity of the drill string. This is particularly true in deeper waters.

No difficulties are expected in returning to location after a siege of bad weather.

On returning, radar triangulation is expected to guide the vessel to within 15 ft. of its original position. Even if the error is somewhat greater, the drill string will ride the guide lines down to the hole.

The equipment is designed for clean abandonment.

To conform with Coast Guard requirements that no projection be left on the ocean floor, a special tool on the drill string removes the wellhead assembly, guide bucket, and the casing below the surface.

Limits of this technique have not yet been explored. At present the method may not be effective for drilling below 3,000 ft., but some believe this figure will eventually be doubled.

that leasing won't move at a speed commensurate with the bidders' interest.

A bigger reason for the companies' seeming indifference to leases is the lack of feasible tools for drilling in deep water. Like all sensible hunters, the operators don't want to buy a hunting license until they have made arrangements for a gun. But they may be forced to.

Since the war's close, 19 companies have spent more than $20-million in seismic surveys off the coast, which in itself is a strong hint of their opinion of the area. So thoroughly has the area been crossed and crisscrossed that it is doubtful if any one company has exclusive knowledge of a given structure.

Realizing this, every interested company fears the day when someone else will ask the state commission to offer a parcel right on top of an extremely interesting structure—but in water too deep to be drilled by existing methods.

In such an unpleasant situation the company might reason that it had already spent, say, $5-million on offshore exploration and engineering in evaluating, say, three major structures, and that failure to bid on this tract (one of the three) would be the same as tossing away an investment of more than $1-million. It therefore would lift a prayer for a suitable drilling device before the five-year deadline for spudding in, and proceed to enter a sealed bid containing a long row of numerals.

Bidding in the past is no criterion for estimating the bonuses which will probably be paid. Since 1938, the only state lands put under lease were those being drained by nearby production, and the award was on the basis of the best royalty offer.

At a recent offering, however, the lands commission chose to set royalty and call for bonus bids on 5 sq. mi. of proved acreage off Newport Beach. The winning bids averaged about $1-million per acre. Bonus bids on hot wildcat prospects may run higher.

Every major West Coast company except one is caught in this dilemma.

The exception is Tide Water Associated Oil Co., and even it is beginning to show interest. Other prominent offshore operators are Humble Oil & Refining Co., Signal Oil & Gas Co., Monterey, Honolulu Oil Corp., Western Gulf Oil Co., and Seaboard Oil Co. There is also a four-way combine formed to share exploratory data and to bid together for leases, made up of Superior Oil Co., Continental Oil Co., Shell Oil Co., and Union Oil Co. of Calif.

Only the smallest companies will be squeezed out of the game by the initial stakes.

Wildcat leases will be offered in minimum parcels of 3 sq. mi. Anyone may bid, and the successful bidder is free to assign the lease to other operators. Information, not cash, is going to be the major factor in deciding who participates in this operation.

Development will probably be too gradual for dramatic impact on the West Coast industry as a whole.

- Eventually, the state's present status as a net importer would be altered by offshore success. Formerly, California's traditional markets included the entire West Coast and extended out as far as Japan. These have now been lost to other suppliers.
- Only a very substantial addition to reserves would affect the refining branch. Right now there are probably no plans for new refineries or major expansion. The two newest plants (General Petroleum Corp. and Shell Oil Co.) are in the Northwest and will run Canadian crude.
- Early production will be barged ashore. Quantity production in less than 200 ft. of water would pose no unusual pipeline problems. Bechtel Corp. points out that it has laid a line in water deeper than 200 ft. at the Mackinaw Straits.

But an immediate strike of major proportions would hurt West Coast drilling contractors. The offshore race would be stepped up and onshore drilling would slump sharply. With tens of millions of dollars going into bids, engineering, and drilling of marine leases, the operators would be forced to cut their onshore budgets.

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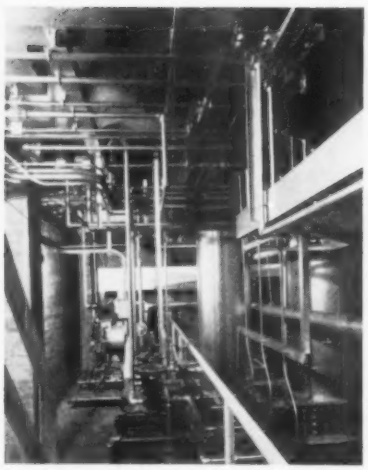

OPERATING BOARD (left) controls simulated high-pressure well (right), as . . .

Lab Pretests Down-Hole Tools

As wells get deeper and deeper, well-servicing tools are being subjected to ever-increasing bottom-hole temperatures, at the risk of costly failures. To meet this challenge, drillers need, more than ever before, pretested tools. That's why Schlumberger Well Surveying Corp. has set up a new laboratory at Houston, designed to anticipate the problems of 400F temperatures and 25,000-psi. pressures that are likely to be found below 30,000 ft.

Temperatures in the Plaquemines Parish (La.) record depth test and in some other deep wells have hit 340F, and pressures up to 20,000 psi. have been encountered. And the industry expects even greater hazards as drilling depths increase. Severe punishment awaits cables, instruments, explosives, and perforating guns. Drillers will have to make accurate penetration tests and gauge flow conditions under extreme conditions.

The equipment for Schlumberger's new lab was designed and constructed by Tellepsen Petro-Chem Constructors, a division of Tellepsen Construction Co., of Houston, in cooperation with Schlumberger engineers. Unusual housing for the principal unit is a pit, 25 ft. long, 16 ft. wide and 25 ft. deep. The 18-in. walls and 24-in. floor are of reinforced concrete.

Two test wells are used to simulate extreme bottom-hole conditions (picture, right). One well has a 14-in. inside diameter and is 9½ ft. long. It was designed for 400F maximum operating temperature and 25,000 psi. working pressure, and has been hydrostatically tested at 37,500 psi.

The other well has a 5½-in. ID and is 26 ft., 6½ in. long. It was designed for 400F temperature and 20,000 psi. working pressure, and has been tested at 30,000 psi.

The 14-in. ID well is provided with two thermo wells and the 5½-in. well with three thermo wells, all indicating water temperatures in the test wells on a multicolor strip recorder.

As an aid to efficient operation under high pressures and temperatures, the head, or breech lock, of each test well is so constructed that only a one-eighth turn is required to open or close it. Leak-proof seals are provided by "O" rings built into the block.

Insulated connections through the block permit operation of the tools at any time during a test.

The wells are pressurized with three reciprocating pumps, each capable of producing a pressure at the outlet of 32,568 psi.

The pumps use a 4-in. stroke and have 7/16-in. plungers. When they are running at 90 strokes per minute, displaced volume is 11.4 gal. per hour.

Operated by an air pressure of 100 psi., the pumps are controlled by regulators which can cause them to "stall out" at any specified discharge pressure, thus providing the desired test-well pressure.

Heat for the test wells comes from a steam generator with a capacity of 1,310 lb. of steam per hour.

Packaged and skid-mounted, the generator has a maximum operating pressure of 595 psi. To achieve complete remote control operation, the automatic cycling type combustion controls on the generator were moved and incorporated into the panel board. The boiler is on the operations level of the concrete pit, which is 10 ft. below the laboratory floor.

Operating temperatures range up to 400F, with an adjustable increase rate up to 200F per hour. An adjustable cooling rate up to 300F per hour is also possible. These correspond to a rate of descent in drill holes of about 20,000 ft. per hour, and an ascent rate of about 30,000 ft. per hour.

Except for the placing of tools in the test wells and opening and closing the breech blocks, complete operation of the laboratory is controlled at the panel board (picture, left).

The board is constructed in three sections. The first contains controls for all utility services, and two air switches for operating a reverse circulating valve and a cooling tank dump valve.

A second section contains all instrument switches and controls necessary for operating the 14-in. well, the multicolor strip chart recorder, the circulating pump switch, and the starter for the boiler feed pump.

Mounted on the third section are controls for the 5½-in. well, and starters for the sump pump and pit vent fan.

The laboratory was designed to insure maximum safety for personnel and for surrounding plant facilities.

A ventilating fan circulates fresh air through the pit 24 hours a day and also removes stack gases from the boiler during heating. It is connected electrically to all laboratory controls, so that no other operation is possible if the fan is not in action.

Alarm signals are incorporated in an automatic system which prevents unintentional switching off of the horn.

NEXT WEEK in Petroleum Week

This will be a bigger, busier year for the Permian Basin of West Texas and New Mexico.

No spectacular discovery is responsible for this, and no one area will be the hub of activity. Major reasons are improved tools and techniques, which are bringing up crude in commercial quantities from zones formerly considered nonproductive.

For a quick, bright look at one of the nation's top oil provinces, see next week's Petroleum Week.

What's New / IN EXPLORATION, DRILLING, PRODUCTION

Record Depth Production Expected in February

The world's deepest test will become the world's deepest producer around mid-February, according to a prediction by J. F. (Ed) Hill, vice-president and general manager of Richardson & Bass, of Fort Worth, operator of the Plaquemines Parish (La.) project.

After a threatened blowout and cave-in several weeks ago, the well succeeded in reaming back to bottom this week, and was running electric log.

Hill said the sands to be tested will depend "on complete evaluation of all the information at hand, the electric log, and other information."

Well cost during the reaming was about $113,000, which is a little less than the normal monthly bill. Total cost of the well as the week began was $1,635,668.

The well is jointly owned by Richardson & Bass, the oil and gas division of Freeport Sulphur Co., and John W. Mecom, of Houston.

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New Pontoons for Mr. Gus

C. G. Glasscock's $3.5-million mobile drilling barge, "Mr. Gus," will be outfitted with new pontoons before going on location for the farthest-out test ever drilled in the Gulf of Mexico.

Mr. Gus is nearing contract depth on a 14,000-ft. Humble Oil & Refining Co. prospect off Nueces County, Tex. When the job is finished, the barge will go to Sabine Pass, near Galveston. Its pontoons on either side will be replaced with new ones extending the entire length of the unit.

So far, Mr. Gus has drilled $1-million failures for Shell, Humble, Gulf Oil Corp., and Atlantic Refining Co.-Tide Water Associated Oil Co.

The new location, 63 mi. from shore and in 93 ft. of water, is part of a 103,680-acre tract in the High Island (Tex.) area for which Shell bid $5,423,760 in a federal government sale. Continental Oil Co. shares interest in the new project.

Glasscock officials say the bottom at the new location is better than any Mr. Gus has had.

Crews will be transported to the remote operation by two 85-ft. boats. Two service boats will handle supplies, and a helicopter will be stationed on the rig or at the base near Galveston to take care of any emergencies that may arise.

Crews will work eight 12-hour days and will be off four days. A personnel of 75 will be necessary to handle the operation.

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New Ratable-Take Plan

A true statewide procedure for ratable taking of natural gas won't stand up, largely because of "untrue, unrealistic" nominations by producers and purchasers, it was predicted by Texas Railroad Commissioner Olin Culberson. Speaking before the Houston Chapter, API Division of Production, he advocated a "pipeline system" method of establishing ratable take.

"The Texas regulatory group is stepping up efforts for ratable take. Latest action was an order involving the Waskom field, Harrison County, combining features of previous orders dealing with the Henze field, DeWitt County, and the Alco-Mag field, Harris County.

Culberson predicted that Louisiana's new ratable-take procedure will falter because of inaccurate nominations, the inability of some gas wells to produce allowables, and seasonal fluctuations in demand.

Under the pipeline system approach, all fields connected to a particular system or systems would share equitably in market demand for Texas gas.

"I can't see anything wrong," Culberson explained, "in taking the combined ability of fields connected to a pipeline or pipelines and say, 'Distribute this [demand] equitably.'

"I don't think that Louisiana nor we can make a statewide order stand up, because that means that every field must have its equitable share in a market whether the field has connections [to a pipeline] or not. It's impractical to say that we will distribute the whole demand for gas among all the wells in Texas whether they are connected or not."

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Barber Oil Co., of New York, will explore and develop the East Texas holdings of Kirby Lumber Co., of Houston, under an agreement to be drawn up shortly. Kirby owns 326,000 mineral acres in East Texas, of which about 25,000 acres are under lease. The deal is expected to bring forth a new exploration-production subsidiary of Barber Oil, which is headed by T. Rieber.

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Tennessee Gas & Transmission Co., of Houston, submitted the high bonus bid of $267.12 per acre for 1,280 acres of Ute Indian lands in San Juan County, N. M.

Bids totaled $1.4-million for leases on 31,000 acres, Consolidated Ute Agency said. Tennessee Gas also appeared to be the higher bidder on two other tracts totaling 3,840 acres. Stanolind Oil & Gas Co. appeared to be the successful bidder on two tracts totaling 3,760 acres.

Stanolind asked for the sale after El Paso Natural Gas Co. completed a San Juan discovery for 70 bbl. in 24 hours.

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Drilling Highlights

California—Richfield Oil Corp. has staked location for a followup to the deepest well ever drilled in California's Cuyama Valley. Goal is to find commercial pay in sands which showed some promise in a 13,106-ft. duster abandoned by Richfield in October. Present production in Cuyama Valley is from 3,000 ft. to 6,000 ft.

North Dakota—Texota Oil apparently has the state's first discovery of the year in western Burke County, about 15 mi. northwest of a Divide County wildcat which had encouraging shows in mid-December. The Burke County wildcat recovered 310 ft. of 32-gravity oil on drillstem test at 6,206-41 ft.

Oklahoma — British-American Oil Producing Co. has revised the flow gauge on gas found at the state's deepest producer, a geological wildcat in the Knox pool, Grady County. On drillstem test of the first Bromide (Ordovician) sand at 14,931-15,013 ft., the well surfaced gas in 29 min. at the rate of 13,750,000 cu. ft. per day, plus 270 ft. on distillate. The well is producing from pay 800 ft. lower than in the former state record holder, which is also located in Grady County.

PETROLEUM COMMENTS / By W. M. Jablonski

We've Got to Run Faster—to Stay Put

The domestic oil industry is going to run a good deal faster just to stay where it is.

The U.S. is currently producing about 2½-billion bbl. of oil a year. But it isn't enough merely to find 2½-billion bbl. of oil to replace that amount. Something on the order of 4-billion bbl. has to be found each year to stay just where we are in terms of years' supply.

This is because new supplies have to be found each year not only to replace what was consumed, but (1) to offset the natural decline in production, which averages about 8% a year, and (2) to provide for the annual rate of growth in demand of about 5%.

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As chairman Robert E. Wilson, of Indiana Standard, put it recently: In order to maintain the current 13 years' supply of oil in the ground, we must discover 100% of what we use up, plus 13 times the 5% increase in demand. As long as consumption increases at that rate, we need to discover a total of 165% of what is used up each year.

And this the industry has been failing to do in recent years. (In 1953, for instance, it withdrew 2.3-billion bbl. but found only 2.9-billion.)

* * * *

That 165% requirement, too, is going to get tougher and tougher to meet as time goes on. The nation's oil needs will continue to rise steadily. As they do, the new-discovery requirements will also rise—only faster—to truly staggering proportions.

In five years, domestic oil demand is expected to soar to around 10-million b/d. This would require domestic production of about 3.1-billion bbl. annually (unless imports are upped correspondingly). And it would need a discovery rate of about 5.1-billion bbl. annually to stay even on years' supply.

In 10 years, annual production of some 3.9-billion bbl., and discovery of some 6.4-billion bbl., may be needed—more than twice as much as found last year.

And so on.

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The industry, of course, has stepped up its drilling to rates that would have been regarded as fantastic just a few years back. As a result, it has stepped up its rate of new oil strikes.

But it isn't just the number of new discoveries that counts. It's also their size.

And there's the rub. For some years now, there's been a marked decline in really important finds. This can be seen from the following table (based on information prepared by F. H. Lahee, well-known authority on exploratory drilling, covering 17 states, accounting in 1953 for 98% of total U.S. production):

Discovery Year	Reserves in Millions of Bbl. Over 50	25-50	10-25	1-10	Below 1	Abandoned	Total Fields
1947	4	7	15	52	165	58	301
1950	3	10	17	98	280	58	466
1953	0	4	13	74	505	7	603

When final returns are in for 1955, they're likely to show much the same picture: a record number of new strikes, but, except for the new tidelands "frontier," few discoveries in the "major field" class.

And this country is really dependent on large fields.

One well-known expert on reserves, who prefers to remain anonymous at this time, is completing a study which shows that 65% of all the oil found in the U.S. to date has come from only 283 fields. The top 500 fields have accounted for 72.9% of all the oil. Since the beginning of the oil industry until 1955, some 80-billion bbl. have been found. Of this, the top 283 fields account for 52-billion bbl.

It took all the other 20,000 or so fields ever found in the U.S. to add up to the remaining 28-billion bbl.

The vital importance of large fields can be seen another way. At today's consuming rates, even a 50-million-bbl. field amounts to only a 6 days' supply. A 1-million-bbl. field is just three hours' supply—mere chicken-feed.

Not only are large fields becoming more difficult to find, but most discoveries recently have been in fields which generally yield little or no profit.

Dr. Lahee estimates that a new field must have, on the average, at least 1-million bbl. of ultimate recoverable reserves to be profitable.

His studies show that only one out of 44 new-field wildcats (those that discover entirely new fields) finds as much as 1-million bbl. total ultimate reserves. Nearly 98% of all new-field wildcats drilled are failures, he says, in that they are abandoned as dry or discover reserves too small to be profitable.

All this points up the real magnitude of the job facing the industry if it is to continue to provide the basic supplies needed by the U.S., without undue dependence on imports. It explains why more than half the industry's $5-billion annual capital expenditure is being spent on exploration and production—and why even more, much more, will have to be spent in the future.

And it forcibly demonstrates why continuation of the tax allowance on oil well depletion, and an adequate crude oil price, are matters of vital importance to the nation.

GLUM EXECUTIVES of Gulf's Italian affiliate look at well (left) that may stay shut down because of Italy's proposed harsh new oil law, while ENI, state oil agency, gets set for stepped-up drilling activity (right). Proposed law is reason . . .

Why U.S. Oil Firms Are Turning Thumbs

A few months ago, a score of American oil companies, large and small, stood ready to plunge millions of dollars into oil exploration in Italy, on a scale never before witnessed on the continent. Today, U. S. oil corporations operating abroad wouldn't touch Italy "with a ten-foot pole," a Petroleum Week survey disclosed this week.

The reason: the harsh terms of the government's proposed new petroleum law.

The discovery last spring of the first oil on Italy's mainland, by a Gulf Oil Corp. affiliate, had touched off what amounted to international oil fever. Italy's oil prospects looked good. Many companies were attracted, too, by possible oil production in an area with sizable local market outlets, and close to other European consuming centers.

This not only interested the large international companies such as Gulf, Jersey Standard, Socony, Caltex, Shell, and British Petroleum. It also had a special appeal to the host of medium-sized and smaller U. S. companies that recently have been flocking abroad in search of oil reserves, but which lack market outlets of their own.

The Italian government seemed happy, too, at the bonanza this foreign investment would offer the dollar-starved Italian economy. It promised speedy action on a modern petroleum law to govern exploration and production. (Private companies were already producing oil in Sicily, which, under regional autonomy, had passed its own mining law in 1950.)

On Oct. 25, Italy's Council of Ministers issued an official communique, announcing that the objective of the new oil law would be to introduce in Italy a "regime of competition which stimulates private initiative to participate in this sector (of industry)." All seemed rosy.

But then, on Nov. 23, the terms of the new bill were published.

The stated aim of Italy's proposed new oil law is to "encourage" private enterprise. But its actual terms, oil men found, almost completely contradict its stated aim.

In fact, the terms for private oil operations are the most burdensome issued by any country in recent years. In addition, the bill discriminates heavily in favor of the state agency, ENI (Ente Nazionale Idrocarburi). The new law does not disturb ENI's monopoly in the Po Valley. Nobody seriously expected it to do so. But its provisions, in effect, extend the discrimination in favor of ENI to the rest of Italy.

The Government Bill is now before Parliament. Whether it'll be amended there is anybody's guess. But oil circles are not particularly optimistic over chances of sufficient revision to make the law palatable.

The most far-reaching implication of the new law is Italy's attempt to impose a 60-40 profit-sharing precedent in a 50-50 world. The 50-50 principle has now become almost universally accepted as a fair basis of dividing profits between a foreign producing company and the local country. It sets the pattern of operations in almost every oil producing area in the Middle East, Latin America, or elsewhere. It has been specifically included in virtually every new petroleum law adopted abroad in the last few years: in Turkey, in Libya,

Down on Italy

in Peru, in Bolivia, and in Guatemala.

Oil companies are not prepared to jeopardize their whole basis of foreign investment, and set off a whole new string of worldwide reactions, for a comparatively unimportant potential producer such as Italy.

In fact, Gulf Oil Corp.—which has the biggest single stake in Italy, with a sizable investment already sunk in its Italian discovery—has announced it will abandon its oil find rather than accept 60-40.

Obviously, the 60-40 formula alone is enough to rule out Italy, not only for the international companies, but also for the numerous medium-sized and smaller U. S. companies that have ventured abroad recently. More than a dozen of the latter have now acquired their first foreign oil concessions in such areas as Egypt, southern Arabia, Libya, Guatemala, and so forth—all countries which recognize the 50-50 profit sharing basis.

A check this week of a representative group of these firms found all turning thumbs down on the Italian proposals. Typical comment:

"Sure, I'd be interested in taking a gamble in Italy," the president of one told PETROLEUM WEEK. "But only on the same basic terms as elsewhere. Why should I undermine my chances of a 50% profit anywhere else in the world merely for the privilege of being allowed to take an uncertain gamble in Italy for 40%? For example, I'm interested in the new oil concessions Venezuela may grant. What if the Italian action should prompt Venezuela to make the new terms 60-40? I'd have to be a fool to go into Italy."

Entirely apart from the 60-40 issue, there are many other unusually restrictive and burdensome features in the Italian bill that are unacceptable to oil men.

One independent U. S. wildcatter, who said he personally did "not give a hang whether the 60-40 feature upset anybody else's concessions," says:

"That bill is guaranteed to make you lose money even if you're lucky enough to strike oil. Only a man with no experience would consider going in under those terms—and he should have his head examined."

Financially, the bill offers a private operator virtually no relief in the early period of heavy investment. In almost every other country, the government's 50% take of the net profits of a producing company doesn't apply until after initial expenses and investments have been recovered by the company, and its production reaches a sizable level. In addition, such countries as Peru, Turkey, Bolivia, Guatemala, and Libya offer an even greater incentive by allowing producers to deduct a depletion allowance—usually 27½%—before applying the 50% rule.

But not Italy. The Italian bill provides that the government is to get 60% of the net profits of foreign companies right from the start. This is done partly through the income tax and partly through a "mining supplementary tax" that would be adjusted to keep the ratio at 60%. There is no depletion allowance at all.

Officially, the bill purports to give companies some "relief" by allowing them to deduct from the mining tax up to 25% of their net profits—but only if this is reinvested in the area where the oil was produced.

On closer look, though, even this "relief" means virtually nothing. First, the deduction doesn't apply against the total income tax, but only to the supplementary mining tax. Second, it's limited to a period of 10 years from the date of the enactment of the law—not from the date of an oil discovery, or even the date of a concession. In other words, it's valid only for a short period—in the period in which an oil company most likely would have no profits at all—and provides no benefits later when the company may begin to profit.

The terms governing exploration and production are also unusually restrictive:

• **The state reserves the right to a considerable area around each private discovery well.** A foreign company would be allowed to keep only 3,000 hectares (less than 7,500 acres) around a discovery. Nor could it get contiguous exploitation concessions in case of subsequent discoveries. It must leave a one-kilometer strip around each separate concession. The areas between these separate producing concessions are to be "reserved for the state," and may be assigned directly to ENI. This not only means that ENI would most likely profit from any private discovery, but it would also oblige a concession holder to irrational, "leap-frogging" development of a field, strongly increasing its chances of drilling dry "development" wells.

• **An exploration permit must be converted to an exploitation concession within a month after a discovery**—so quickly that a company would hardly have a chance to determine the extent of its probable producing area. Thus, ENI might easily get more benefit from the discovery than the concessionaire.

• **Production concessions are limited to only 20 years,** generally regarded as too short a period for a reasonable chance of real profitability after assuming the risk of exploration. A 10-year extension may be granted, but under terms to be determined at that time by government decree.

• **Only a small fraction of the exploration area may be converted to exploitation concessions, and only if oil is struck.** No company is allowed more than a total of 80,000 hectares in producing concessions (3,000 hectares each) out of a total of 300,000 hectares in exploration permits.

• **Exploration permits may not be contiguous,** but must be at least 5 kilometers apart. Each individual permit is limited to 50,000 hectares, with no company allowed to hold permits of more than 150,000 hectares in any one of the 17 regions into which the country is divided, or more than 300,000 hectares in all of Italy.

• **Exploration permits are for only three years, with two successive**

two-year extensions. However, each area must be reduced 25% after the initial period and another 25% after the first extension. Geological and geophysical prospecting must start within six months of receipt of the permit, and drilling within 24 months —or the permits are forfeited.

• **The bill is unusually harsh in stipulating a broad series of situations under which the permits and concessions are forfeited**—many of them beyond the reasonable control of the operator.

One of the main features of the law is a complete and continuous discrimination in favor of ENI, or other state agencies, as compared to private oil companies. The law, for instance, specifically exempts ENI from any restrictions on the size of exploration permits or exploitation concessions, or on their contiguity. It also gives ENI, under certain circumstances, the right to develop oil deposits found at the cost of private entrepreneurs.

Private oil enterprise can coexist with a state-owned concern; it does, today, in some other countries. But not, oil men point out, under a regime of "unfair competition" such as proposed in Italy.

Turkey is a good contrast. The country has a government-owned oil agency. Yet the new, modern petroleum law promulgated there recently explicitly forbids any preferential treatment for the state enterprise.

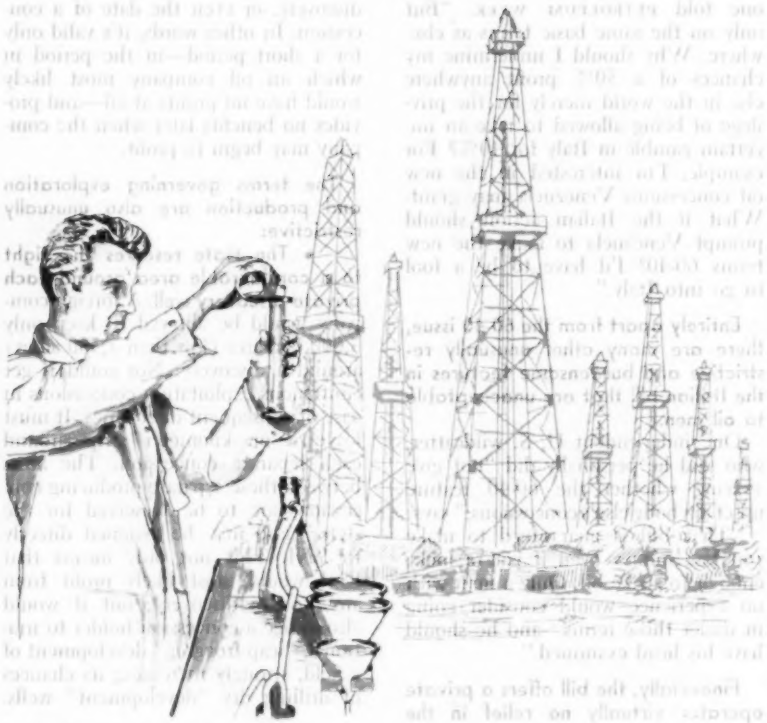
One U. S. oil man experienced in foreign oil legislation summed up the proposed Italian law thus:

"Seems to me the Italians went around the world picking out all the most restrictive provisions they could find in every other petroleum law, without including any of the compensating favorable features of those laws—and then upped the government's profit take to 60%, just for good measure.

"I can't for a moment believe they had any serious intention of attracting foreign oil capital."

Politically, this all looks as if the Italian government really wants to keep foreign companies out of Italian oil—despite its own desperate lack of adequate capital for oil development—but does not want to appear as if it's taking any specific, legal discrimination against them in principle.

More specifically, it looks like a real victory for ENI's spirited boss, Enrico Mattei—who, defeated in his attempts to win formal monopoly over Italian oil, seems to be acting on the old adage: "There's more than one way to skin a cat."



Filters for the Petroleum Industry

Filtration equipment has many applications in the Petroleum Industry. Some of these fields being worked on a batch basis today are being studied for continuous operation by leaders in petroleum processing equipment and leaders in petroleum production.

In petroleum as in many other fast developing industries, the need for high volume filtration equipment, unrestricted flow, absolute product purity and minimum maintenance attention are the desirable characteristics in which the user is most interested.

The challenge for this equipment has been accepted. Eimco will produce equipment for these fields as it has already produced the best in filtration equipment for the Petroleum Industries in numerous refineries.

Engineers and Research personnel at work in the petroleum industries are invited to send their problems on filtration in any of its numerous aspects to Eimco's Research and Development Center, 301 So. Hicks Road, Palatine, Illinois, where a highly trained staff of specialists is at work with every known type of filtration equipment (vacuum and pressure) to solve the liquid-solids separation problems of all industry.

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What's New / AROUND THE WORLD

USSR Sells 20 Rigs

INDIA—The USSR pocketed a government order for 20 drilling rigs under a purchase agreement signed in New Delhi last week. India is expected to negotiate a further agreement with Rumania this month for an additional $5-million worth of rigs. The exact value of the order placed with the Soviet Union is not yet known. Earlier, however, Soviet sources in New Delhi indicated they were expecting a total order for $25-million worth of oil equipment (PW —Dec.16'55,p28).

The terms of the agreement call for immediate delivery of the first three rigs, with the balance to follow by the end of the first quarter of this year. The first consignment will go to the government coal fields in east and central India, with oil drilling rigs to follow.

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Speeds Cuban Drilling

CUBA—The Canadian-owned American Leduc Petroleums, Ltd., is planning a brisk step-up in its Cuban drilling program this year, following successful completion of 15 wells out of 17 drilled, it was revealed in Edmonton last week. In a report to stockholders, the company said it will drill 30 new wells in the producing area. Total output now averages an estimated 20,000 bbl. monthly.

The company's wholly owned subsidiary, Cuban-Canadian Petroleum Co., Ltd., holds oil concessions totaling 4,992,700 acres in the five provinces of Matanzas, Havana, Las Villas, Pinar del Rio, and Camaguey.

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To Seek U.S. Aid

JAPAN—Two Japanese executives will leave for the U. S. shortly to negotiate with three companies of the B. F. Goodrich group on technical aid for a new petrochemical project, it was revealed in Tokyo last week.

Sakichi Kishino, president of Japan Geon Co., and Takashi Nakane, managing director of Yokohama Rubber Co., will negotiate the technical contracts with B. F. Goodrich Chemical Co., Goodrich-Gulf Chemicals, Inc., and B. F. Goodrich Co. in behalf of eight member companies of the Furukawa financial group. This group is now planning to enter Japan's burgeoning petrochemical field and will seek government approval after talks with the U. S. companies are completed. Their plan is the seventh petrochemical project proposed by Japanese firms in the past year.

The group will form a new company—tentatively to be called Furukawa Chemical Industry Co.—capitalized at 3-billion yen ($8.4-million). It will produce synthetic rubber, ethylene oxide, polyethylene, and synthetic fibre.

Main points of the Furukawa plan on which the U. S. negotiations will be conducted are:

A synthetic rubber processing plant is planned for construction in Kawasaki, near Tokyo, at a cost of $8.4-million. It would be operated with technical aid from B. F. Goodrich Chemical Co.

Polyethylene and ethylene oxide will be processed at Asahi Electro-Chemical Co.'s Ogu plant under a technical contract to be negotiated with Goodrich-Gulf Chemicals, Inc. Ethylene will be obtained from the Tokyo Gas Co.'s Senju plant. Cost of the project is set at $2.8-million.

Japan Light Metal Co. will manufacture synthetic fibre in a plant to be built at Niigata, using local gas as a raw material. Cost of the project, for which B. F. Goodrich Co. would supply the technical knowhow, is set at $8.4-million.

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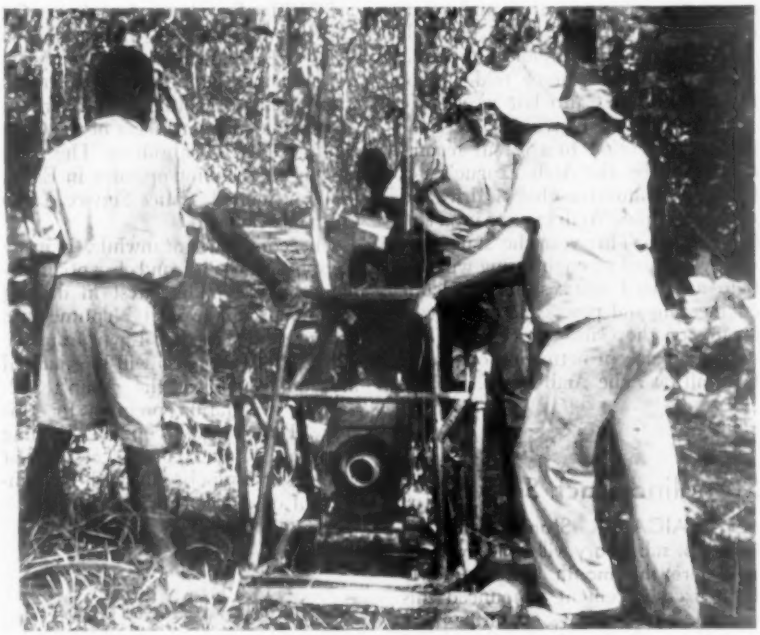
Add Libyan Rights

LIBYA—The Texas Co. and Standard Oil Co. of California last week joined the growing list of U. S. groups



Jungle Oil Hunt Enters 20th Year

This year the two-decade search for oil in Papua's jungles will be continued under an $8-million program calling for three new wildcats to be drilled by the two companies controlled by Standard Vacuum and British Petroleum. Thus far, Australasian Petroleum Co. and Island Exploration Co. have drilled some 10 wells since 1936, without striking commercial quantities of oil or gas. Aramia 1, the most recent, was abandoned in November at 6,628 ft. after encountering slight oil and gas traces. The next well will be spudded at Morehead in April. The Kuru site, which has been under preparation for almost two years, is now scheduled for drilling in July (PW—Sep.16'55,p24). A further wildcat will be drilled at Barikewa when access is completed. Dense jungle, as shown, in the shot-hole drilling scene above, presents serious obstacles.

granted oil concessions under Libya's new petroleum law (PW—Dec.9'55, p30). The companies announced that their respective subsidiaries, Texaco Overseas Petroleum Co. and California Asiatic Oil Co., each had been granted a one-half undivided interest in exclusive concessions. The total area covers approximately 14.2-million acres in the provinces of Cyrenaica and Tripolitania.

The companies have been conducting geological and geophysical work in the general region of the concessions for the past two years; an active exploration program for the new holdings is now planned.

The companies recently also acquired extensive oil concessions in the Philippines (PW—Jan.6'56,p38).

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Egyptians to Train Here

EGYPT—Houston will be the first oil training ground in the U. S. for two officials of Egypt's Fuel Dept. The Commerce Ministry has sent the two Egyptians to the U. S. to specialize "in oil production and refining of petroleum products, as well as prospection and exploitation of oil fields," an official source told PETROLEUM WEEK in Cairo last week.

Egypt has been giving some sympathetic attention to a recent recommendation by the Arab League's Petroleum Committee that a drive be started for more Arab experts in petroleum affairs. This year the state university's school of engineering will initiate advanced courses in petroleum engineering and processing and petrochemistry, the Cairo source said. The school will accept petroleum engineers from all over the Arab world.

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Stanolind Pact Set

JAMAICA—A Stanolind Oil & Gas Co. subsidiary will start exploration here this month under a newly formalized agreement announced this week. A. L. Solliday, executive vice-president of Stanolind, announced formation of Jamaican Stanolind Oil Co. to take over the exclusive oil licenses formerly held by Base Metals Mining Corp., Ltd., of Toronto, following conclusion of a three-way agreement with the Jamaican government (PW—Nov.4'55,p27). President of the new wholly owned subsidiary is Thomas A. Hendricks. Howard W. Schwartz has already taken up his post in Jamaica as resident representative.

Jamaican Stanolind will hold licenses covering 5½-million acres and serve as operator. It will spend $2-million on geological and drilling work by June 21, 1958, under the new agreement. A "substantial cash payment" was made to Base Metals, which retains a 25% interest in any production found.

The company's initial exploration program, on which contract crews will be used exclusively, involves four surface geological parties, one core-drilling crew, and a seismograph crew. The most promising onshore areas will be mapped first, Solliday says, with offshore work to be undertaken later. The concession is about equally divided between onshore and offshore acreage.

Base Metals, which acquired the Jamaican concessions in 1952, had encountered several shows of oil and gas in a well drilled on the western tip of the island last June. It had also encountered a strong show of oil in a water well drilled to 2,000 ft. in the south central part.

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U.S. Unit Goes 'Sahara'

EGYPT—Egyptian American Oil Co. last week switched its name to Sahara Petroleum Co. Arabic-speaking nationals had difficulty with the former name, according to Millard K. Neptune, general manager of the Continental Oil Co. subsidiary. The company serves as joint operator in Egypt for Continental, Cities Service, Ohio Oil, and Richfield.

The company, meanwhile, is ready to spud in its second Egyptian exploratory well. The latest in drilling equipment will be used, Neptune says; it has recently reached Egypt from the U.S. A third well also will be spudded in soon as part of the group's $12-million exploration program for this year (PW—Nov.4'55,p28). Drilling continues below 10,000 ft. at the first wildcat, at Borg el-Arab, with no commercial oil shows thus far.

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Forms Mexican Branch

MEXICO—A servicing subsidiary is being formed here by National Supply Co., the Pittsburgh manufacturer and distributor announced last week. The new National Supply Co. of Mexico, S.A., will be managed in Mexico City by two vice-presidents, Edward M. Gretzler and J. M. Estrop. The company's export division in New York will continue to handle sales of oil field equipment and machinery.

Purpose of the move, which has been contemplated for several years, is to provide better service on National Supply equipment used in Mexico's increasing drilling and oil producing activity, the company says.

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Seek New Concession

NETHERLANDS NEW GUINEA—The joint U.S.-British-Dutch group exploring for oil here has filed a request for a new concession agreement, according to sources in The Hague. Under the proposal, 42-million acres would be added to the holdings of Nederlandsche Nieuw Guinee Petroleum Maatschappij. No government action on the request is anticipated in the near future, however, since Indonesia's claim to the Dutch possession still remains to be settled.

NNGPM was formed in 1935, with Standard Vacuum and Royal Dutch Shell each holding 40%, and Texaco and California Standard the remaining 20%, through Far Pacific Investments, Inc. The original concession of 24.7-million acres is being reduced in stages. The new proposal would dissolve the 1935 agreement and give the company an initial total of 56.8-million acres.

In the past 20 years, the company has spent more than $110-million in exploring for oil in the jungled and swampy terrain, with relatively small success. Commercial production started in 1948, and since then three small fields have been producing, at best, about 4-million bbl. yearly.

•

VENEZUELA—Two U.S. petroleum engineers have formed Well Service Engineers, C.A., to provide mobile well servicing in eastern Venezuela. Headquarters of the company formed by W. T. Carpenter, of Dallas, and Z. M. Barnett, of Shreveport, will be at Santa Barbara, in the state of Monagas. Special equipment designed to reduce moving and rigging-up expenses in the marshy terrain of eastern Venezuela will be shipped from Beaumont next month.

•

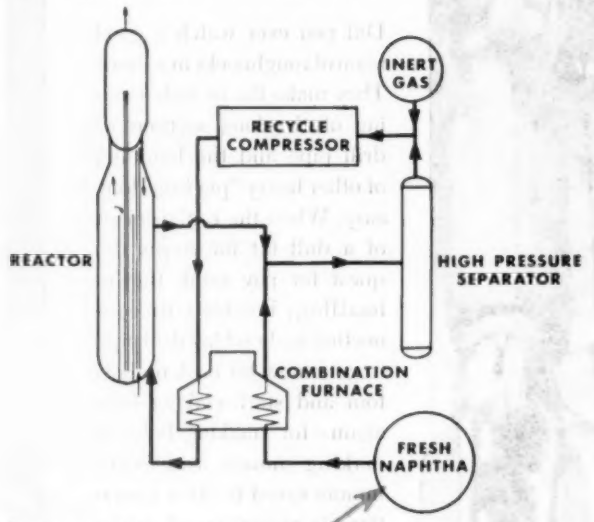
IRAQ—A record $205.5-million in oil revenues was received by the government in 1955. The internationally owned Iraq Petroleum Co. and its associated companies made a fourth-quarter payment of £18.9-million, bringing the year's total to £73.4-million. This is an increase of £4.9-million ($13.7-million) over total payments in 1954, and more than a five-fold jump in four years (PW—Jul.29'55,p30).

Roughnecks...

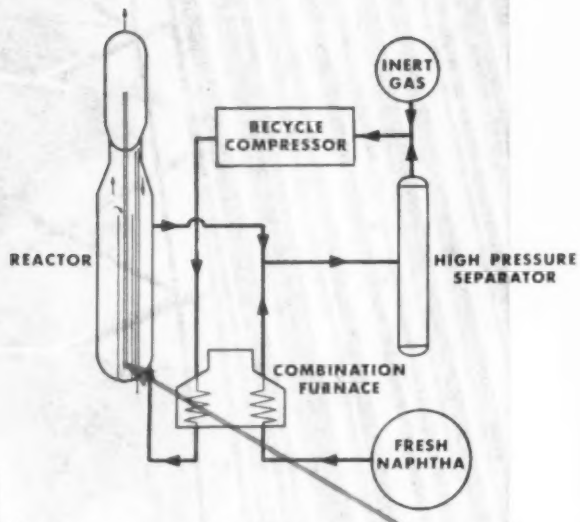
Did you ever watch a good team of roughnecks in action? They make the orderly racking of the long sections of drill pipe and the handling of other heavy "pig iron" look easy. When the replacement of a dull bit interrupts the quest for pay sand, they're hustling: hoisting, disconnecting and racking drill pipe to get a new bit back on bottom and start making hole again—for "making hole" is making money and every minute saved in other operations is money saved, and a lot of it. That's where the skill and teamwork of good roughnecks make the difference.

The Texas Company

TEXACO



1. This is the way system should have been operating at end of purging. Fresh naphtha feed was beginning to enter here. But then . . .



2. Oxygen apparently entered system here. Then . . .

Indiana Standard's preliminary report tells . . .

What Really Happened at Whiting

Nearly five months after the explosions and fire at its Whiting (Ind.) refinery, Standard Oil (Indiana) is continuing its policy of reporting all the information on the disaster to the industry and the public.

The company's latest move is the release of its preliminary report on the industry's most spectacular disaster, which occurred last Aug. 27 (PW—Sep.2'55,p11). This is being published this week for the first time by PETROLEUM WEEK and, in full, by PETROLEUM PROCESSING, a McGraw-Hill publication.

Prior to this first publication, the report was circulated to the two most interested industry groups—API's central committee on fire protection and the general committee of the association's Division of Refining.

Investigation of the cause and mechanism of the explosions is continuing. But meanwhile, the company is reporting its preliminary conclusions.

Wide distribution of detailed information on such disasters is important as a preventative measure to all branches of the oil industry. Most accidents can be attributed to human or mechanical failures; case studies can point to the lessons learned that may prevent similar disasters.

The oil industry's safety record has been good, particularly when the hazardous nature and the huge volume of the products handled is considered. Such a record speaks well for the industry's emphasis on safety in all operating phases. But all too frequently, detailed factual reports of the causes of serious disasters are not publicized throughout the industry.

Indiana Standard's actions at the time of the explosions, and since, may well become a case study for oil companies planning for what they might do if hit by disaster. When the accident occurred the company had all set to put into effect a detailed plan for handling such emergencies (PW—Sep.9'55,p11). This included an emergency communication system to provide up-to-the-minute reports to a press room established at the refinery.

No attempt was made to "play down" the story. But by its actions in providing quick, factual reports the company kept the publication of erroneous information to a minimum. That also is the company's purpose in releasing the preliminary report on the cause of the disaster.

Indiana Standard's report attributes the cause of the disaster to explosions from the "accidental but unrecognized" leakage of oxygen into the recycle gas system.

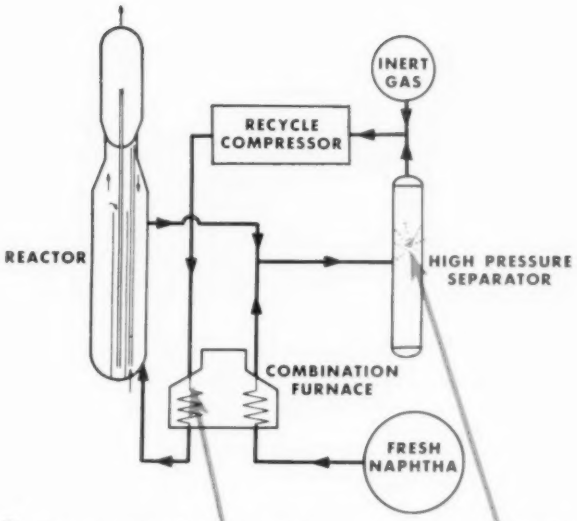
This leakage came from the catalyst regenerator atop the reactor (pictures). The air entered the reactor through a plug valve in the catalyst circulating pipes.

"The evidence . . . indicates that . . . at least one of the plug valves in the catalyst recirculating piping in the reactor must have been open a substantial amount in order to account for the necessary flow of air between the regenerator and reactor, but no evidence is presently available to account for the open position of the valve," the reports states.

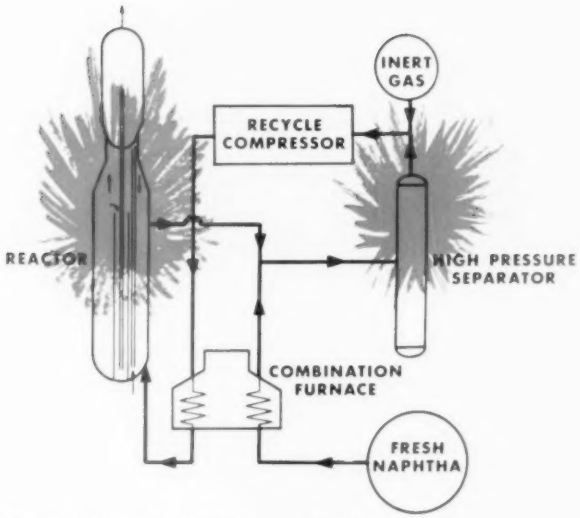
At the time of the explosion, operating personnel were in the process of starting up a 25,000 b/d catalytic reformer following a shutdown for maintenance and alterations. The unit had been installed five months earlier.

An inert gas had been circulating through the recycle system for more than 24 hours prior to the explosion to purge air from the system. In normal operation, the recycle system returns recycle gas from the high pressure separator to the reactor system.

After this circulation had been started, burners were lighted in the re-



3. Spontaneous ignition may have occurred here . . . and/or . . . static electricity here



4. Result: two simultaneous explosions

cycle gas radiant section of the combination furnace to heat the recycle gas for drying a new concrete bottom in the reactor. Shortly after the burners were lighted off, fresh naphtha feed stock was started through the unit, at a normal start-up flow rate of about 10,000 b/d.

Circulation of the naphtha through the naphtha convection section tubes in the combination furnace was necessary to cool the convection section tubes when the recycle side of the furnace was fired.

After circulation of the inert gas and naphtha was started, contact between the two was made in the system. And when the recycle gas was later separated in the high pressure separator, it still contained between 2% and 3% hydrocarbons, principally pentanes and hexanes. And, the report states:

"This amount was sufficient to satisfy the combustible requirement for an explosive mixture. Hence, thereafter the recycle gas could not be considered inert—although it still would require sufficient oxygen (estimated at about 10% minimum) to make it explosive."

Operating records show that periodic checks made during the start-up indicated the plug valves between the reformer's regenerator and reactor vessels were closed to prevent air from entering the system.

The method of checking these plug valves, which are located inside the reactor near the bottom, was an external inspection to determine whether the compensating springs seating the plugs in the lower ends of the catalyst pipes were correctly compensated. Correctly compressed springs indicate the plug valves are closed. And from the report:

"At 6 a.m. . . . a check showed that the catalyst plug valve pressure compensating springs functioned properly . . . The explosions occurred about 6:15 a.m." They occurred in the recycle gas system, particularly in the reactor and high pressure separator.

"The cause of ignition has not been established, but at least two possibilities are known—spontaneous ignition in the recycle furnace, and spark ignition from static electricity in the high pressure separator."

The explosions within the reactor and the high pressure separator completely destroyed these vessels. Other explosions occurred in the recycle gas system, but the report says the damage there was less serious.

Explosions in the reactor and high pressure separator produced a large number of fragments, which were scattered over an area of about 1,200 ft. radius. Many of these fragments fell into two working tank fields north of the Hydroformer.

The vessels involved in the explosion showed no evidence of faulty design or construction, according to the report.

Examination of design, metallurgical inspection of the materials used, and inspection of the welds reveal that "the design, the materials, and the workmanship pertaining to these vessels met existing code requirements."

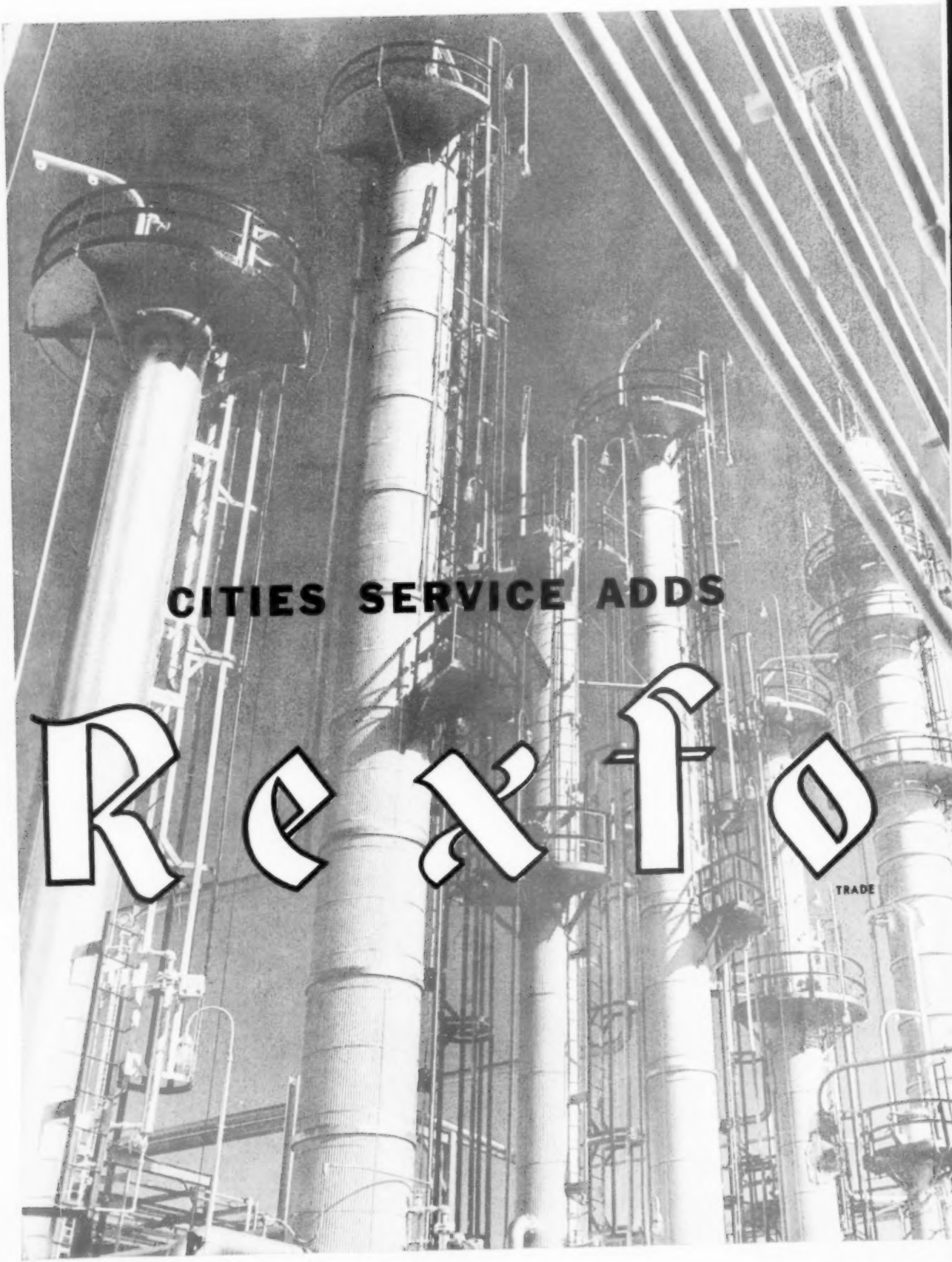
There was an indication of possible trouble in the start-up operation nearly four hours before the explosions.

"During the 12-8 shift on Aug. 27, trouble was experienced with the inert gas generator," according to the report. "This trouble was first reported at 2:30 a.m., when it was noticed that the reading of the oxygen recorder (in the inert gas system) had risen to more than 2%, and the fire in the generator was out." At that time the generator was shut down, blocked off, and vented to the atmosphere and thus isolated from the recycle gas system.

Additional heating of the reactor and regenerator was discontinued, and temperatures in these two vessels were held constant pending the refiring of the inert gas generator.

After several attempts to light the inert gas generator, it was steamed out at about 5 a.m., and arrangements were made to relight the burner. And from the report:

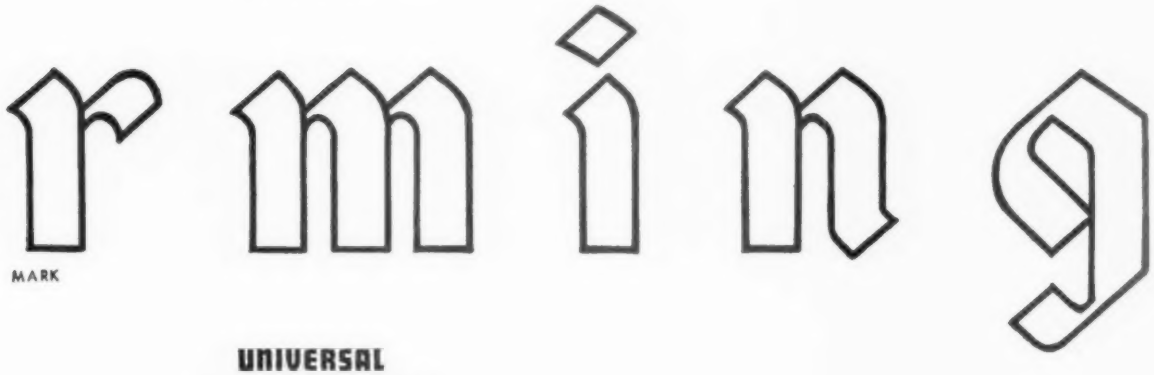
"During the process of doing this it was discovered that the inert gas generator chamber was approximately half full of water which probably accounted for the difficulties experienced with the burner. Immediately following the discovery of water in the chamber the explosion occurred."


CITIES SERVICE ADDS
Rexfo
TRADE

After an exhaustive study, Cities Service Oil Company (Del.) has chosen the UOP Rexforming process as the best method for upgrading low octane naphthas to meet the rapidly increasing demand for higher octane gasolines.

A 6,000 barrel per stream day Rexformer will be installed at Cities Service Ponca City, Okla., refinery as an important part of an extensive new construction and expansion program.

By installing the Rexforming process, the latest development in the catalytic reforming field, Cities Service will be assured of obtaining the best yields of the highest octane blending material for the company's motor fuels. Rexforming, developed by Universal, is capable of producing gasolines having octane ratings considerably in excess of 100 clear.



MARK

UNIVERSAL OIL PRODUCTS COMPANY

UOP

30 ALGONQUIN ROAD,
DES PLAINES, ILL., U.S.A.

Forty Years Of Leadership
In Petroleum Refining Technology

PIPELINE CREWS have finished construction, now the Southern Pacific R.R. has put . . .

SP's Pipeline 'On Stream'

Texas gasoline is bubbling westward through the recently completed Southern Pacific pipeline. But it may be March before Southern California products start flowing eastward, and the full impact of the line on the booming central Arizona area is felt.

Except for the crossing of the Colorado River, the 844-mi. line is finished. It extends from Watson, Calif., on the outskirts of Los Angeles, eastward to Yuma, Ariz., then to Phoenix and Tucson, and from there to El Paso. Products to be moved by the line will start at both Watson and El Paso and converge on the Phoenix-Tucson area (PW—Aug.5'55,p26).

The eastern leg of the line—from El Paso to Tucson and Phoenix—started operating last week, just about on schedule. (It was the first time in history that products had moved west out of Texas by pipeline.) The company will have the western leg complete by the end of the month, but it will be some time after this before products start moving, because shippers haven't put up terminals yet.

Initial capacity of the line will be 52,600 b/d, and this can be increased to 76,100 b/d with the addition of pumping stations. Pipe diameter on the line ranges from 8 in. to 16 in.; branch lines, which total 176 mi. when built, will use 6-in.-diameter pipe.

In addition to handling commercial products—aviation, premium, and regular gasolines, and diesel fuel—the line will deliver jet fuel to four air force bases: March Air Force Base, near Colton; Luke and Williams bases, near Phoenix, and Davis-Monthan, near Tucson (PW—Oct.21'55,p25).

All jet tenders will originate from the Los Angeles area—actually at the Norwalk (Calif.) military jet fuel terminal—and be moved to the bases. Refineries in the El Paso area produce no jet fuel.

One thing is certain so far. From the way oil companies have signed up with the line, it evidently will be an economic asset in their operations.

To date, 11 companies have signed with SP to move their products on the line. They are: Standard of California, Union of California, Richfield, General Petroleum, Tide Water, Gulf, Shell, Texaco, Texas Independent Oil Co., Standard Oil Co. of Texas (a California Standard subsidiary), and McNutt Oil & Refining Co. (recently bought out by El Paso Natural Gas Co. (PW—Oct.21'55,p11).

SP applied for its rates to the Interstate Commerce Commission in late November, and they became effective Jan. 1. From Watson, it plans to charge 8½¢ a bbl. to move products to Colton; 28¢ a bbl. to Niland, Calif., and 60¢ a bbl. to Phoenix. From El Paso, it plans to charge 49¢ a bbl. for movement to Tucson, and 60¢ a bbl. to Phoenix.

As a matter of comparison, the tank car rate from both Los Angeles and El Paso to Phoenix is $1.3419 a bbl., and the truck-transport common carrier rate is $1.399 a bbl.

Terminals are either under way or in the planning stage by the companies. Union Oil has advertised for bids for a $668,000 terminal at Phoenix, and a $450,000 terminal and marketing station at Colton. Richfield is building a 100,000-bbl. storage facility at Colton, and a 175,000-bbl. storage facility at Phoenix, which it plans to complete in March. Tide Water will lease facilities from SP at Colton and Phoenix. General Petroleum will lease facilities at Colton, Niland, and Phoenix.

In addition, California Standard, Texaco, Texas Independent, and McNutt plan terminals at Phoenix, and all of these except Texas Independent plan terminals at Tucson as well.

Just how the pipeline will influence a marketing battle between independents and majors in Arizona isn't clear yet. Independent marketers can't sign up with the line because they are too small to handle the minimum tenders required—15,000 bbl. at Watson, and 10,000 bbl. at El Paso.

Last July, independents banded together with the intention of building terminals at Phoenix and Tucson, and using the pipeline. The organization, now named the Independent Gasoline Distributors of Arizona, has about 80% of the independents signed up, according to its president, C. L. Foster, Sunset Oil Co. distributor. Foster says plans for the Phoenix terminal are complete, though no definite announcement about its construction has been issued.

Possibly a reason for the inaction on the part of the association is that its members aren't sure which way to turn. Major companies are expected to offer attractive supply contracts to independent distributors in an effort to prevent building of the independents' terminal. And the independents are trying to find ways to stay independent.

Standing to lose if the independents tie in with major suppliers are independent refiners in the Los Angeles area. The Arizona distributors organization uses from 95,000 bbl. to 142,-

000 bbl. of gasoline per month, supplied mainly from the Los Angeles area.

Just what dollars-and-cents impact the line will have on the area is hard to say. California Standard said several months ago that it expected retail gasoline prices in the Phoenix-Tucson area to be cut by from 1¢ to 1½¢ per gallon. But Phoenix distributors believe the reduction will be token, say 1¢ at the most.

"It is our considered opinion that if the nonusers [suppliers and distributors] do not utilize our pipeline, they cannot meet the competition," Southern Pacific says.

Certain to be affected by the line are independent long-haul truckers. They can't compete with SP's prices to Phoenix, even though they may move products to parts of the state not served by the pipeline.

In an effort to prevent the operation of the line, three truck lines petitioned ICC in December to reject or suspend the initial tariffs posted by SP. The truckers claimed that "the use by the pipeline company of portions of the railroad right of way is an improper use of the lands." ICC promptly turned down the request.

SP says the pipeline is only 60% on its right of way. The remaining 40% was acquired from 2,500 public and private landowners.

The pipeline is likely to spur production in the Permian Basin to meet the rising demand for products in Central Arizona.

With the pipeline, Permian crude can move to El Paso to be refined, then move to the Tucson-Phoenix area as products. Pasotex Pipe Line Co., a California Standard subsidiary, recently completed a $3.5-million expansion on its line from Wink, Tex., to El Paso. Pasotex supplies principally the El Paso refinery of Texas Standard, which started moving products through the SP line last week.

SP's contractors termed building of the line "normal," with a few interesting problems cropping up.

Specifications called for the pipe to be buried only when the temperature was 80F or less; this was to prevent contraction stresses setting in after burial. But such a specification was hard to carry out in some areas where temperatures range all the way up to 150F during the day. So contractors welded the line into loops of 400 ft. to 600 ft. during the day, then buried it and made tie-ins after midnight. One contractor used a unique coat-and-wrap machine that sprayed the coated pipe with water to cool it so it could be buried.

What's New
IN TRANSPORTATION

Six companies have offered to build a total of 22 to 24 new tankers for charter to the Military Sea Transportation Service which is seeking 15 new tankers under 10-year charters. Awards will be made by Feb. 2 if bids meet with MSTS approval.

At the same time, United Oceanic Corp. announced it was dropping out of the bid race. United Oceanic was the only successful bidder for the same tankers last summer, but later had its award to build eight ships rescinded by the Navy. Now, United Oceanic says, costs have risen so high that it cannot bid under the 55-per-month-per-ton charter ceiling set by Congress. Oleum-Atlantic Corp., a previous unsuccessful bidder, says, however, that shipyards have offered to build tankers at prices running "a few thousand" over previous prices, but low enough to make the MSTS deal still worth going after.

Besides Oleum-Atlantic, the firms bidding are: Northwestern Tanker Corp., Big Tankers Corp., New England Shipping & Tanker Corp., Phoenix Tankers, Inc., and Sea Transport Corp.

•

Pacific Northwest Pipeline Corp. has pushed back its target date for delivering natural gas to the Seattle area from July 1 to Oct. 1, 1956. The July 1 deadline still is in effect, however, in the Portland and Spokane areas.

•

Arapahoe Pipe Line Co. will expand its crude oil gathering and transportation facilities by the acquisition of 420 mi. of existing pipelines, effective Jan. 31. Approximately 33 mi. of 10-in. line from Adena field, in Morgan County, Colo., to Merino, Colo., will be acquired from Pawnee Pipe Line Co., together with the gathering lines in the Adena area. A 42-mi., 8-in. line running from Little Beaver field, in Washington County, Colo., to Merino, with its gathering system, will be acquired from Goodall Pipe Line Co.

Approximately 345 mi. of gathering lines in Kansas and Nebraska, which feed into the Arapahoe system, will also be acquired. Arapahoe's principal trunk line extends from oil fields in northeastern Colorado and Nebraska to Humboldt, Kan., where crude oil is delivered to connecting pipelines. Arapahoe is jointly owned by Sinclair Pipe Line Co. and Pure Oil Co.

Have you a problem in gravity?

The applied science of gravity has come a long way since a falling apple awakened Sir Isaac Newton to this basic law. The ways in which GMX has put these laws to use were undreamed of in Sir Isaac's day. New techniques in gravity work are constantly being applied by GMX crews in their search for oil—a search that has been carried on continuously since GMX entered the gravity exploration field in 1925.

Gravity Meter Exploration Co.
Esperson Building,
Houston

GMX

A. C. Pagan
L. L. Nettleton
N. C. Steenland
M. W. Baynes

Oil Is Tuning to TV

Looks like video has scored another victory over its elder rival, radio, in the competition for oil-company advertising. Cities Service Co. will drop its "Band of America" program Jan. 16, after carrying regular concert presentations for 29 years on NBC radio. The company has been spending slightly more than $600,000 a year on the program, for station time alone, in the past five years. Now part of the "Band of America" budget will be diverted into TV channels. The rest will go into "spot" radio (time bought locally at individual stations) and into other advertising media.

CBS radio suffered a similar setback, from another oil company, last June, when Standard Oil Co. of California abandoned its "Standard Hour" after 28 years of sponsorship. In fact, only eight oil marketers (including Cities Service) were still using network radio on a year-round basis at the end of 1955, five of them for 15-min. newscasts, one for an additional 15-min. sportscast, and two for 5-min. newscasts.

Network figures indicate that video finally topped radio last year, for the first time, in the bidding for oil marketing money. Because of rapid rate changes, discounts, and other variables, such authorities as Publishers Information Bureau stopped charting advertising expenditures in network radio last July. But up to then there was nothing to indicate that the radio networks would collect more money from oil industry time buyers than the $4.6-million they collected in 1954. On the other hand, the TV time-cost tabulations, available thus far to October, point to an oil industry expenditure of about $5.2-million in '55. Back in 1951, for comparison, the figures stood at $4.7-million for network radio and only $2.6-million for network television.

Neither dollar expenditures nor network programming, however, show the oil marketer's true relation to the radio-TV struggle. The fact is that radio and TV networks have both been losing oil-company customers to individual stations. Latest oil company to drop out of network TV, for example, is Tide Water Associated Oil Co., which failed to renew its contract this year with ABC-TV for "John Daly and the News." This leaves only three oil companies on network screens on a year-round basis this year. And it still remains to be seen what these three will do in contract negotiations this year.

The programs are: "Life of Reilly" (Gulf Oil Co., NBC), "Person to Person" (American Oil Co., CBS), and "Texaco Star Theater" (The Texas Co., NBC).

Television networks, nevertheless, have been able to show increasing revenue from oil advertisers because of higher rates. The industry itself, for example, estimates that a typical half-hour evening program in 1951 cost $12,000 for station time. The same program today would cost upwards of $31,000. And when the rising tab for talent, stage production, and ad agency fees is toted up on top of this, the figures leave most oil companies with an inclination to shy away from the "spectaculars" and other big-time programs.

But the oil marketers are swinging slowly to TV. And cost is only one of the reasons they're emphasizing short, non-network presentations, according to a PETROLEUM WEEK poll of oil advertisers. Actually, spot commercials and news and weather "breaks" cost the advertiser more, per minute, than the rate for full-length programs. But the advertiser is also paying for far fewer program minutes in order to get minutes for his commercial message. And time and talent costs are also lower in this field. So over-all costs are lower. And as one marketer puts it, "We like the idea of getting frequent mention for our money, over a full day or a full week of short newscasts, instead of limiting our commercials to a specific night on a specific program."

The disadvantage to this approach, according to some ad agencies, is that the sponsor can't develop a major sales theme, as he can when he's paying for the privilege of interrupting a long show. The same sources also say the sponsor who concentrates on spot messages fails to get his product identified publicly with some personality or presentation that evokes good will in the minds of the viewer or listener.

Furthermore, the TV industry itself has been touting news programs and weather reports, as well as sportscasts, to entice advertisers into the media.

The biggest reason, though, why oil companies are leaning more and more to local rather than network programs is the fact that all but a very few oil companies market regionally, not nationally. And their territories don't jibe with those of the networks. For this reason, some 65 oil marketers concentrate on spot TV, taking their pick of some 459 TV stations and 2,814 radio stations throughout the country. And while individual oil companies agree they are getting deeper into TV advertising—many increasing their total advertising budget an average of 5% this year to reflect the trend—media records are still too uncertain in this field to measure the change precisely.

The television industry, incidentally, will try harder than ever this year to lure oil companies into greater video advertising efforts. The new pitch is based on claims that those who watch TV the most also do the most auto driving. The Television Bureau of Advertising (TvB), a nonprofit league of television broadcasters, says this contention has been established by A. C. Nielsen Co., the firm that rates TV programs on the strength of set monitors in some 800 selected homes. TvB says the Nielsen pollsters kept track of speedometer readings for all cars operated by those families on the Nielsen circuit. The findings were then correlated with other background data, and projected into national statistics. When the figures were completed, says TvB, it was found that the cars driven the most belong to families that watch TV the most. This finding should interest those oil marketers who argue that oil marketing and television have incompatible aims: the one to promote motoring, the other to promote sofa-sitting.

Furthermore, says TvB in reply to TV cost challenges, the "typical half-hour evening program" cited in 1951 time-cost figures reached only 1.8-million homes—while the same program today reaches almost 6.5-million.

The TV industry's efforts to attract more oil company business underscore a basic problem in all advertising evaluations: You can find out who your sales message reaches, but its almost impossible to trace it to the cash register. One oil company advertising manager sums up the situation like this: "We're playing by ear. We select advertising media according to research findings. But we can't spend the whole budget on research. So we try everything and keep our fingers crossed."

And a TV executive sums up his industry's relations to oil marketers: "The only thing we're sure about is that they don't spend enough money in our media."

What's New

IN MARKETING

Heating oil dealers in Oregon, already worried about coming new natural gas supplies in their area, now have a new reason for anxiety: Their "commander in chief" has joined the opposition. Charles R. Holloway, Jr., for two years president of the Oil Heat Institute of Oregon, and a leading strategist in the big heating-oil campaign now under way, has joined Portland Gas & Coke Co., one of the biggest gas utilities in the Pacific Northwest expansion program. His job: vice-president in charge of marketing.

■

Bay Petroleum, Inc., refining and marketing arm of Tennessee Gas Transmission Co., intends to double its 300 retail outlets in the next five years. This is the "minimum goal," according to Leo L. Leabo, marketing vice-president. Bay will build service stations; starting this year, in Kansas, Colorado, Nebraska, Wyoming, Idaho, New Mexico, and Utah. After that, Bay expects to move into Texas and Oklahoma, to fill out a marketing strip from its Chalmette (La.) refinery to the Rockies, served by its Denver refinery. Leabo says "acquisition of additional refinery capacity is definitely in the picture." The company will also enter the TBA field, and plans to market lubricating oil and asphalt "rather extensively." Bay was acquired by TGT last summer.

■

Harry P. Dunn Co., 28-year-old Chicago marketing firm, has divided its operations to improve handling of Champlin Refining Co. products. The firm will operate as Charles J. Wood & Associates in handling wholesale sales of Champlin's unbranded lubricating oils, petrolatums, and waxes. All other sales will be continued under the Dunn Co. name.

●

Puerto Rican service stations more than doubled their total dollar sales in the 1949-54 period, according to a joint survey just released by the U.S. Census Bureau and the Puerto Rican government. Sales climbed from $12.2-million to $25.1-million. The number of service stations increased from 427 to 502 in the same period, while bulk plants dropped in number from 14 to 6. Bulk-plant sales, however, rose 53% —from $25.9-million to $39.6-million.

OIL MEN Specify:

2200-5000 Volts

Diesel-Loading pumps with EC&M Div. 2 Starters.

EC&M

50,000 KVA
Interrupting Capacity
MOTOR STARTERS

OUTSTANDING ADVANTAGES

1. Reduced floor space
2. Low-cost Div. 2 design
3. 50,000 KVA interrupting capacity
4. Combination starter with Disconnect Switches
5. Corrosion resistant, weather-proof construction
6. Copper tungsten contacts for positive operation
7. Simple 3-wire TIME-DELAY UVP push button circuit
8. THERMAL-MAGNETIC Overload Relays give accurate motor protection . . . trip instantly on faults
9. All internal wiring complete
10. Self-contained bus and pot-heads are optional

6722

Petroleum engineers specify these Starters for Division 2 semi-hazardous locations because they assure substantial savings in installation and operation.

Construction advantages include: Type III weather-resisting enclosure with drip-proof roof, tank-cover and front-cubicle doors . . . oil switch which opens 220-volt control transformer before upper door can be opened to operate main line disconnects . . . overload and control relays in flanged (Class I, Group D) enclosure with removable cover . . . main contactor with alloy contacts oil-immersed in rear tank. On voltage dips, push button circuit maintained up to 2 seconds by simple 3-wire circuit. "Stop circuit" opens without delay when 'Off button' is pressed.

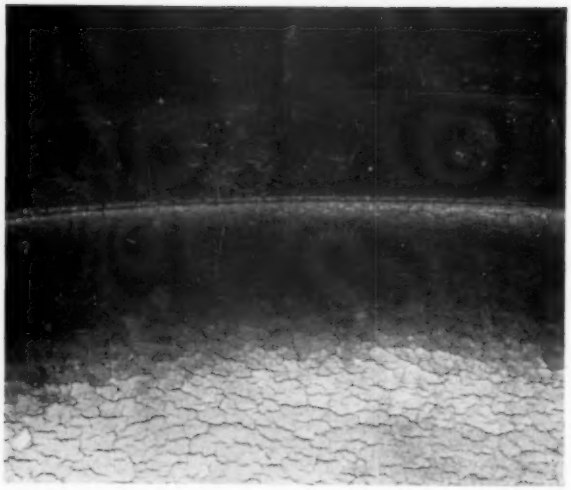
EC&M 2200-5000 volt Starters are also available in Totally Oil-immersed Division 2 Style and in Division I style. Both are available with Oil Disconnect Switch (for main line).

Write for 16-page Booklet 1062 for complete details.

THE ELECTRIC CONTROLLER & MFG. COMPANY

4498 LEE ROAD • CLEVELAND 28, OHIO

BUTYL TIRE shows no sidewall cracking after 10,300 mi. of road testing in California, while . . .



GRS TIRE shows considerable cracking after similar test indicating that it is less durable. This is why . . .

Butyl Rubber Tires May Hit the Road

Butyl rubber, bouncing back from earlier reverses, is on the verge of moving into important new fields for the petroleum industry. The most exciting development on the horizon is an all-butyl tire with exceptional wearing qualities.

A prototype of the new tire already is in pilot-plant production. Road tests of this tire show that it:

- Is far superior to any other synthetic or natural rubber tire in wearing quality, because its chemical composition makes the butyl tire highly resistant to both abrasion and oxidation.
- Has unusually soft riding tendencies, with little or no "cornering squeal."
- Maintains the same air-holding tendencies that made butyl the No. 1 rubber for inner tubes.

Even further improvements in butyl may come from research now under way by Esso Research & Engineering Co. This was indicated last week with the announcement that a new butyl rubber pilot plant is under construction at Baton Rouge, La., to test out laboratory developments.

Some improvements in the present butyl rubber are believed necessary before a commercial tire will be developed. Because of its physical characteristics, it will not combine easily with other rubber. And, like most hydrocarbon rubber, its resistance to oil is only fair.

Butyl also presents some special problems in adhesion. And its bounce is not as lively as in other rubbers.

Another pilot-plant research program with butyl rubber is under way at Armstrong Rubber Co.'s West Haven (Conn.) plant. Armstrong and Esso Research are producing butyl tires both (1) for testing the material and (2) to find the best methods for manufacturing butyl tires. Also, almost all U.S. rubber companies are doing some experimenting with butyl.

Butyl's strongest point—the fact that it is both highly flexible and highly resistant to oxidation—is inherent in the nature of the polymer. Butyl rubber is made from a polymer of isobutylene and isoprene which has only one double bond in its molecular structure for every 100 found in natural rubber. Hence, butyl rubber's percentage of unsaturation is only 1.5% to 3%, compared with 70% for GRS synthetic rubber and 100% in natural rubber.

The double bonds are rubber's weak spots. During the process of vulcanization, sulfur invades the material at these points. If enough sulfur is added to give complete saturation, the resulting product is an extremely hard rubber useful in only such products as telephones.

For this reason, much less sulfur than can be absorbed is usually used in the vulcanization process. This results in a material that is flexible, but still highly unsaturated.

This means that the double-bond weak spots are susceptible to invasion by other elements, particularly oxygen. The oxygen atoms, when combined with rubber, result in oxidation which eventually deteriorates the material.

Vulcanized butyl rubber is close to the point of chemical saturation and so, is highly resistant to oxidation.

Butyl's relatively low appetite for sulfur minimizes the degree of cross-linking of molecules. This gives a butyl tire high resistance to road wear and abrasion.

Butyl's superior air-holding characteristic is due to its tightly packed molecular structure.

While a commercial butyl tire may be at least one and possibly several years in the future, the research laboratories already have found butyl is highly suitable for a growing number of applications in mechanical-goods, fabric-coating, and electrical-insulation fields. Butyl for these and other uses is distributed by Enjay Co., Inc.

These new uses include more than 100 different applications in a 1956 Pontiac (including shock absorbers, window seals, radiator hose, foot pedal covers, etc.).

The amount of butyl by weight in the current Pontiac is equal to more than twice the volume that goes into five butyl-made inner tubes. The latter use had been by far the largest outlet for butyl—until the advent of tubeless passenger car tires knocked this market on the head.

It was primarily this development that spurred the intensified research for new uses.

Gulf Refines Old Separation Idea

Gulf Oil Corp. scientists have applied a new twist to an old chemical technique that may greatly improve the separation of presently hard-to-separate hydrocarbons.

The company announced last week that its technique, called gas-liquid partition chromatography, will quickly separate gases and liquids whose boiling points are close together. Because of the closeness of the boiling points, some complex hydrocarbon compounds are difficult or even impossible to separate in existing distillation columns.

This method also makes possible the separation of materials in quantities that may be too small to distill. This means that analysis of materials can be made when only traces are available.

The Gulf-developed chromatography method uses a hypodermic needle to feed a hydrocarbon sample into a long, thin tube, which is filled with a granular powder coated with an oily substance.

Part of the fluid to be studied goes into solution with the oily substance on the grains and the remainder becomes a gas in the spaces between the grains. A carrier gas is next introduced to force the gas formed between the grains to move down the tube. Additional material then gasifies to fill the voids between the grains.

This process goes on continuously with the flow of the carrier gas. It results in different components of the compound under study moving down the tube at different rates, since each component displays a different equilibrium between its soluble and gaseous phases.

As each component emerges at the end of the tube it is detected by a conventional thermal conductivity cell, and identified on the basis of its transit time through the tube.

This development in chromatography is significant to the petroleum industry because it will aid in improving the identification of complex hydrocarbon compounds. It is not a new science, however.

As far as is presently known, scientific column-chromatography dates from about 1900. It was invented by D. T. Day, who was with the American Geological Survey. His studies were with Pennsylvania crudes.

This separation technique also is the basic principle of Sun Oil Co.'s Arosorb process for the selective extraction of aromatics from reformate.

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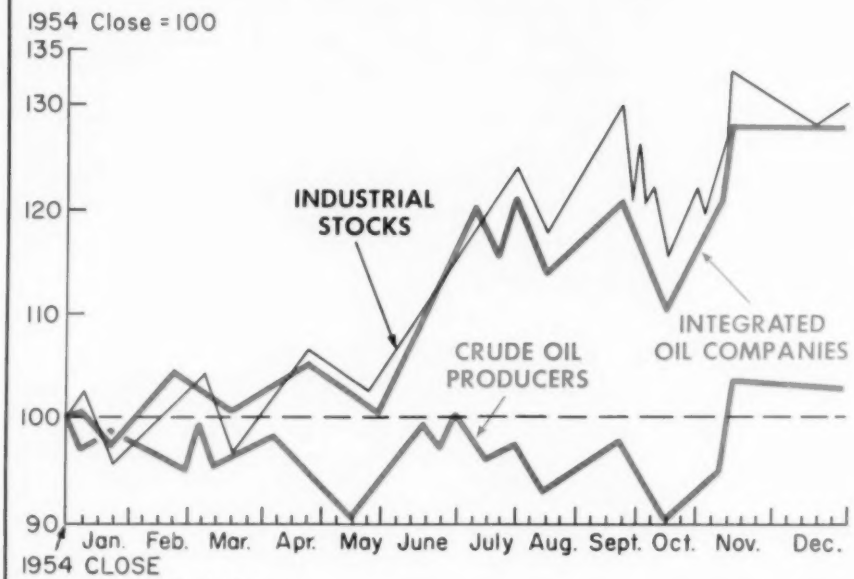
Petroleum Week

330 West 42nd Street, New York 36, N. Y.

Trend in Oil Stock Prices in 1955 . . . . . and 1956?



Data: Standard & Poor's Corp.

Industrials may not do quite as well as in 1955. They will reflect any easing of the nation's industrial boom.

Integrated oils should do as well as in 1955, with big international companies continuing to shine because of booming oil demand overseas.

Rising costs may continue to hold down the producers. A crude price increase would help a lot, but spectacular gains are not expected.

Oils Look Good on 1956 Stock Market

This should be a good year for the securities of most oil companies, both big and small. Large price gains are unlikely, since oil shares are tied to the nation's economy—and no runaway business boom is expected. But few danger flags are in sight for the oils.

This week a Wall Street investment broker said, "The bright outlook for the oil industry hasn't been shown yet in the prices of oil stocks. We should have a lot of good news during 1956."

Other financial analysts contacted in PETROLEUM WEEK's first-of-the-year survey are more reserved. They see some signs of weakness in the still-bullish market. And they point to the unpredictability of stock prices. But with these reservations, they feel the oils generally should add to the gains made in 1955 (chart). Several influential investment firms this week are listing oil securities among the "most favorably situated" groups.

This confidence will aid oil companies in all segments of the industry that have asked the public to help finance their growth. This is especially true of many smaller producers, more heavily dependent than others on the sale of stock for capital.

The favorable outlook will also help employee relations for the hundreds of oil companies with stock-purchase plans. And it is a reassuring note to the thousands of oil men throughout the industry who themselves own oil stock.

Predictions about the country's economic welfare influence the security analysts in sizing up oil shares—and the note for this year is the now-familiar "cautious optimism." The analysts are well aware that two big industries important to the oil industry—autos and home building—are not expected to do so well this year as last.

On the other hand, the analysts have been reading economists' forecasts that the value of all U. S. goods produced and services rendered should run at least 2.5% above 1955. This is good insurance against a tailspin for oil. As one investment broker sums it up, "There's nothing in the economic picture to hurt oil badly."

Rising oil demand in this prosperous U. S. economy will be an important factor in keeping up the prices of oil securities. And booming foreign demand will play a key role. Total U. S. demand this year should be 4% above the very healthy 1955 demand. Investment men note that this 4% is in line with the industry's historical growth trend.

But the eyes of many big investors will be turned overseas, toward operations of companies that are capitalizing on the leaping consumption of oil in free-world nations. Leading this parade are the "big five" internationals—Jersey Standard, Socony, California Standard, Texaco, and Gulf. Demand last year in noncommunist countries jumped 11% over 1954. It is expected to climb another 7% this year.

Financial houses feel the industry's supplies are in good balance, especially since the heating-oil inventory has been drawn down by the colder-than-normal winter. They are pleased by the record capital expenditures of $5.3-billion planned by the oil industry this year.

The stocks of integrated oil companies should do at least as well this year as in 1955, and maybe a bit better. They should maintain their traditional position as good investment stocks. The integrated oils trailed the industrial average in 1955, but not by much (see chart, which covers the stocks of Atlantic, Continental,

Gulf, Phillips, Shell, Sinclair, Socony, California Standard, Indiana Standard, Jersey Standard, Texaco, Tide Water, and Union of California).

Some analysts give the integrated oils a good chance of bettering the industrial average this year, partly because they include the internationals, which did top the industrials last year. Says one analyst, "We think the oils are somewhat undervalued. Oil showed good earnings in 1955, but less than those of the auto, steel, and chemical companies. We wonder whether general industry will be able to keep pace with the integrateds in 1956."

In any case, the oil majors should continue to be a favorite of investment buyers. A broker terms them "one of the two or three most popular groups in the investment buying portfolio." He adds, "The year 1955 was the year of investment buying, and 1956 doesn't look much different."

Vickers Bros., New York investment firm, shows 12 oil companies on its list of the "favorite fifty" stocks of professional investment management (table). And the investment house, Merrill Lynch, Pierce, Fenner & Beane, places 14 oil companies on its list of "111 growth stocks," most of them integrateds. The 14 are Amerada, British American, Continental, Gulf, Phillips, Shell, Sinclair, Skelly, Socony, California Standard, Indiana Standard, Jersey Standard, Texaco, and Houston Oil (which is now being acquired by Atlantic—page 12).

The stocks of the international companies should continue their excellent showing this year. All had good increases in total net income for the first nine months of 1955. Texaco's earnings were up 25%, Jersey Standard's and Gulf's 19%, Socony's 13%, and California Standard's 7%. Income from mushrooming foreign operations figured large in these earnings gains.

Jersey Standard gave the whole stock market a boost with its announcement last month of a 3-for-1 stock split, which will be voted on by stockholders Jan. 30.

A typical view of the internationals comes from the New York broker who says, "Their performance has been striking. They have paid good and increasing dividends. They have large crude reserves abroad, and an inviting vista of foreign growth."

The strength of the internationals was demonstrated at the end of 1955 and in the early days of this year by the fact they were able to gain, in contrast to the other big industrials, which had trouble moving.

The sky is not cloudless for the internationals, however. Any new political trouble in the Middle East could hurt their position. And any new U. S. government restrictions on oil imports would force them to fall back more heavily on foreign markets. However, cutbacks made recently by the importing companies have had little effect on stock prices. Explains an analyst, "Investors don't think the imports cuts will stick, so they're not worried."

Stocks of the larger independent producers may continue to trail the market in 1956, largely as the result of rising costs and tougher going in the hunt for oil. Companies indicating the 1955 trend in producer-stock prices (chart) are Amerada, Houston Oil, Seaboard Oil, Texas Gulf Producing, and Texas Pacific Coal & Oil.

The producers' showing in 1955 was hurt by declines in the earnings of several important companies in the first nine months of the year. Superior Oil, for example, had a 67% drop, which it attributes to heavy writeoffs, intangible drilling expenses, depletion allowances, and other charges. And the producers weren't even helped much by Amerada's 54% jump in nine-month income, since its shares were already priced high (at 92⅝ on Dec. 31). This "high price" factor also put a lid on the stock market gains of other big producers. As a broker explains, "They had gone like the devil before 1955."

Investment circles think there may be a slight increase this year in the normally active sale of stock to the public by the smaller producing and exploration companies. One investment house comments, "There is no pronounced trend. But these small companies were busier in 1955 than in 1954, and they should be still busier this year. They will be selling stock to finance expansion and acquisitions, and to establish estate values."

Another securities firm adds, "In recent years there has been a pronounced trend toward having producing partnerships incorporate and sell 30% or so of their stock to the public. They are almost all undercapitalized, and in this way they create a tremendous capital gain."

The current scramble for more oil reserves by large companies is tending to boost the stock of producers that have good reserves. Says a Wall Streeter, "The trick is to find a little company with good reserves. The cheapest oil is to be found through the securities of other companies, rather than by going out to drill for it."

Oil Stocks Popular With Large Investors

Here are the 12 oil stocks that rank among the 50 most popular stocks of all types with investment trusts and mutual funds. The compilation, made by Vickers Bros., of New York, covers some 200 trusts and funds, with investible assets of some $10-billion. The table shows the rank of the oil companies in the list of 50, and the amount the investment companies have invested in each.

Stock	Rank	Value, in Millions
Jersey Standard	1	$116.6
Amerada	4	102.4
Texaco	8	78.9
California Standard	9	73.4
Continental	11	65.7
Gulf	14	55.6
Shell	21	46.2
Socony	22	45.7
Sinclair	23	44.3
Phillips	28	40.5
Indiana Standard	38	34.1
Cities Service	47	31.1

An example on a large scale came last week, with the announcement of Atlantic's proposed acquisition of Houston Oil. Details of the deal were announced the evening of Jan. 5 by Houston's president, Harold Decker. Earlier that day, Houston's stock, which had been gaining strength as the result of sale rumors, rose 6½ and hit a new high at 150½.

The stocks of other producers will have price "bubbles" this year, as word circulates that someone is interested in buying them.

Producers' securities would get a big lift from any increase in the price of crude this year. Many investment people think one will come, possibly by April—an opinion shared by some oil men.

What the financial men think in itself affects the stock market, however. And one of the questions in their minds is whether a crude increase would stick. The analysts see a big problem in getting an accompanying rise in the price of Middle East crude, and a further problem with "low price" imports if the foreign price doesn't rise.

The analysts also doubt that product prices can rise much this year. Therefore, they say, any crude price increase would squeeze even tighter the refiners' already narrow margins. And the analysts are watching for any sign of oil oversupply, which would undermine higher crude prices.

The Market Place

AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All Prices as of January 9

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal., except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 97 oct prem....13-13.5
- Gasoline, 90 oct reg....11-11.5
- Kerosine....9-9.75
- Heating oil, No. 2....8.75-9.25
- Gas oil, 48-52 d.i....8.875-9.125
- Fuel oil, bunker "C"....$2.10-2.15

Caribbean, cargoes
- Avgas, Grade 100/130....16.75
- Gasoline, 93 oct research prem....11.5
- Gasoline, 87 oct research reg....10.5
- Gasoline, 79 oct research....9.75
- Gasoline, 70-72 oct motor method....9.5
- Kerosine....9
- Heating oil, No. 2....8.75
- Gas oil, 48-52 d.i....8.875
- Fuel oil, bunker "C"....$2.10

New York Harbor, barges
- Gasoline, 89 oct reg....12.25
- **Kerosine....10.85**
- **Heating oil, No. 2....10.35**
- Fuel oil, No. 6....$2.65

Okla.-Group 3, northern shpt, bulk
- Gasoline, 86 oct reg....11-11.5
- **Kerosine....10-10.5**
- **Heating oil, No. 2....9-9.25**
- **Fuel oil, No. 6....$1.95-2.30**

Chicago, bulk
- Gasoline, 86 oct reg....12
- **Heating oil, No. 2....10.4-11**
- Fuel oil, No. 6, high sulfur....7.65-8

Los Angeles, rack
- Gasoline, 84 oct reg....13.1-13.15
- Stove dist., PS 100....9.25-10
- Diesel fuel, PS 200....9-9.3
- Light fuel, PS 300....$2.50
- Heavy fuel, PS 400....$2.00

Natural Gasoline, Grade 26-70
- FOB Group 3....6
- FOB Breckenridge, Tex....5.5

Penna Lubes
- Bright stock, 25 p.t....22-23
- 200 vis. neutral, 25 p.t....20

Mid-Continent Lubes, Tulsa basis
- **Bright stock, solvent, 95 v.i....23-24**
- **Neutral, solvent, 200-210 vis....18.75-19.75**

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i....23
- Neutral, solvent, 200 vis....19.5

Eastern Hemisphere

Singapore, cargoes
- Avgas, Grade 100/300....18.375
- Gasoline, 79 oct research....10.25
- Gasoline, 70-72 oct motor method....10
- Kerosine....9.375
- Gas oil, 48 d.i. minimum....9.125
- Fuel oil, light....$3.10

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36-9....$2.82
- North Dakota, 36.0-36.9....2.82
- Texas:
  - Gulf Coast, low cold test, 26.0-26-9....2.95
  - Gulf Coast, upper & lower, 26.0-26.9....2.82
  - West Texas sweet, 36.0-36.9....2.82
  - West Texas-New Mexico intermediate, 36.0-36.9....2.75
  - West Texas-New Mexico sour, 32.0-32.9....2.61
  - East Texas, flat price....2.90
  - Mirando, 28.0-28.9....2.96
- Illinois Basin, flat price....3.00
- Penna. Grade, Bradford dist., flat price....3.85
- California, Signal Hill, 21.0-21.9....2.39†
- North Louisiana-Arkansas 36.0-36.9....2.82
- Wyoming sweet, 36.0-36.9....2.82
- Wyoming sour, 32.0-32.9....2.48

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) D-2, D-3, L.C....2.54
- Leduc-Woodbend (Alta.) D-2, D-3....2.60
- Redwater (Alta.) D-3....2.49
- Daily-Mississippian (Man.)....2.34
- Smiley-Viking (Sask.)....2.26

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido....3.40
- San Joaquin, 41.0-41.9, Puerto la Cruz....3.04
- Oficina, 35.0-35.9, Puerto la Cruz....2.80
- Tia Juana Medium, 26.5-26.9, Amuay....2.30*
- Bachaquero, 16.5-16.9, Amuay, Las Piedras....1.90**
- West Tarra, 40.0-40.9, Cardon....3.05
- **Lagunillas Heavy, flat prices: Cardon....2.05**
- Amuay, Las Piedras....2.05

Differential per ½ deg. grav.: (*) 2.5¢ bbl. (**) 3.5¢ bbl.
†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabian, 36.0-36-9, Ras Tanura....1.97
- Basrah, 36.0-36.9, Fao....1.92
- Iranian, 34.0-34.9, Bandar Mashur....1.91
- Iranian, 34.0-34.9, Abadan....1.86
- Iraq, 36.0-36.9, Fao....1.92
- Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.72
- Qatar, 39.0-39.9, Umm Said....2.06

Middle East, E. Mediterranean
- Arabian, 36.0-36.9, Sidon....2.39
- Iraq, 36.0-36.9, Tripoli, Banias....2.39

Far East (Cargoes, FOB Lutong, Sarawak)
- Seria Light, 37-38....2.60

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U. S. Gulf-New York, clean....(USMC +130%) $6.56
U. S. Gulf-New York, dirty....(USMC +15%) $3.28
NWI-USNH, dirty....(USMC +10%) $2.97
NWI-UK/Continent, dirty....(MOT +70%) 55/3*
Per. Gulf-UK/Cont., dirty....(Scale +90%) 97/1*
Per. Gulf-USNH, dirty....(USMC +38%) $17.53

**Sterling*

The Market Trend

Who Makes Prices: Consumers? Refiners?

The U.S. industry is showing signs of "going European." It's an Old World custom that dealer gasoline prices fluctuate almost ironclad with prices to consumers. Last week, some American marketers seemed to be following suit. Here's the new U.S. picture:

In the price-war-ridden Twin Cities, Indiana Standard started selling to its dealers at a discount off "suggested competitive retail prices." It was a radical departure. It meant that the company ceased posting wholesale gasoline prices in Minneapolis and St. Paul. It implies that the motoring public may have much more say-so about oil prices at all levels of distribution. Suggested retail prices, Standard said, will be designed to reflect "competitive conditions . . . taking into account not only posted prices but rebates of any kind, premiums, trading stamps, and other forms of price concessions."

In a plaguey price-war area in the East, Sun Oil Co. also made a move geared to prices paid by consumers. The company cut its wholesale gasoline prices 1¢ a gal. to dealers in New Jersey and Philadelphia, but made no reduction at retail at its own company-operated outlets. In doing so, Sun noted that price-cutting—competition for the consumer's dollar—has reduced earnings at many New Jersey and Philadelphia stations.

Both the Sun and Standard moves stress pricing that begins at the consumer. They also echo the concern for profitable dealer operations expressed by Atlantic Refining Co. last month (PW—Dec.16'55,p31), particularly where price competition is severe. At that time, Atlantic suggested minimum margins—off consumer prices—for its Pennsylvania dealers so that they could afford to employ "competent help and give good service to the public."

But wholesale prices geared to consumer prices are bound to raise a storm in oil circles. Dealers welcome them, of course—you seldom hear of a price war in Europe. On the other hand, marketers critical of escalation-off-consumer prices say this trend means that the industry "is not facing up to a problem." There ought to be a better way to combat price wars, they say. Sound business practice, it is widely felt, demands that oil prices start at the refinery gate and "build up" to the consumer, rather than the other way around.

Distillates—The Gulf Calls a Turn:

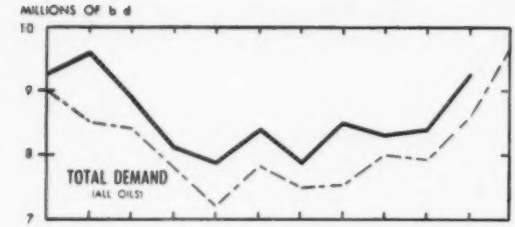
The 0.25¢ advance in Gulf Coast distillate prices (PW—Jan.6'56,p43) is spreading quickly to the markets of the world. The next move was an advance of 8¢ to 11¢ a bbl. in diesel bunkering prices in the Caribbean and the Canal Zone. On Jan. 6, East Coast distillate prices went up 0.3¢. Is Europe next? Most sources think so.

Tankers:

Spot tanker rates proved they were their own boss again last week. They scored a startling drop, from USMC plus 115% to USMC plus 15% for Gulf-New York black oil voyages. Tanker owners shrug off the fall merely as "supply and demand," but look for a rebound. The drop came amid many signs that usually point to firmer rates. The London Tanker Broker's Panel has just assessed the average rate paid in world commerce at a high Scale plus 40%—a development that gives a strong hint that crude prices at the eastern Mediterranean exits of the Middle East pipelines may be boosted to reflect the rise in tanker costs.

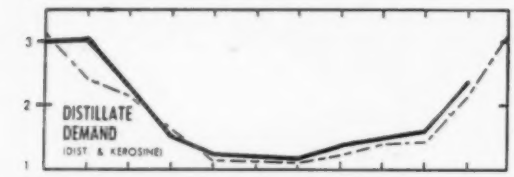
PETROLEUM WEEK'S

Fingertip Figures



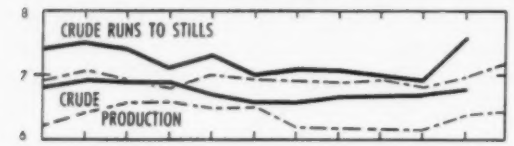
TOTAL DEMAND

Latest 4-week average	10.457
Year ago	9.323



DISTILLATE DEMAND

Latest 4-week average	3.385
Year ago	2.996

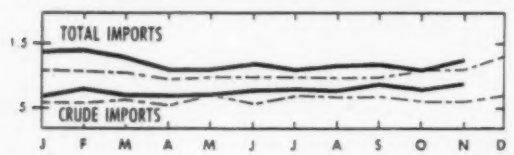


RUN TO STILLS

Latest week	8.020
Previous week	7.907
Year ago	7.389

CRUDE PRODUCTION

Latest week	7.026
Previous week	6.987
Year ago	6.574

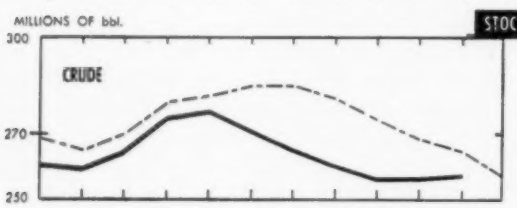


TOTAL IMPORTS

Latest week	1.489
Previous week	1.537
Year ago	1.352

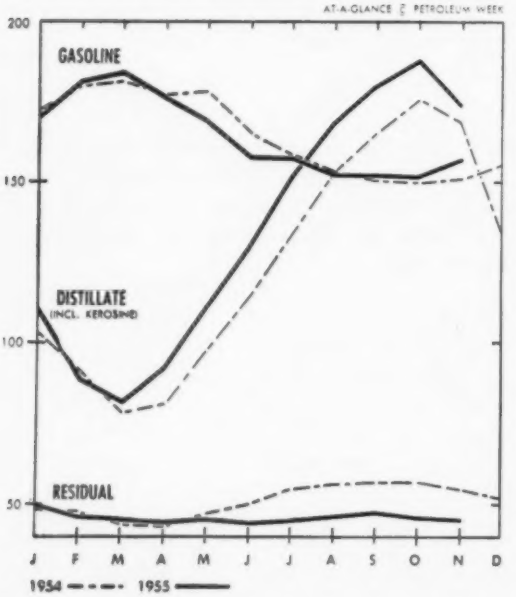
CRUDE IMPORTS

Latest week	.818
Previous week	.974
Year ago	.677



CRUDE STOCKS

Week ended 12-31	262.0
Previous week	260.9
Year ago	261.5



GASOLINE

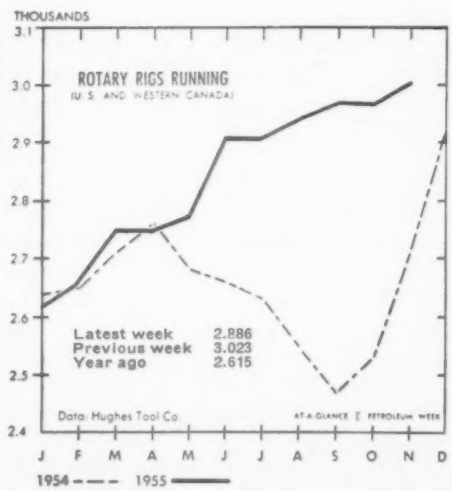
Latest week	169.9
Previous week	164.8
Year ago	161.0

DISTILLATES

Latest week	133.6
Previous week	140.2
Year ago	133.6

RESIDUAL

Latest week	39.7
Previous week	39.9
Year ago	52.1



THE PETROLEUM INDUSTRY is getting off to a good start for 1956. Total demand for the first week of the year averaged 10,236,000 b/d, a gain of more than a million b/d over the first week of 1955. And refinery runs topped 8-million b/d for the first time in history, increasing 113,000 b/d over the previous peak, reached in the last week of 1955.

Obviously, one week's performance doesn't indicate a trend for the year. But the trends last week in demand and refinery operations are significant because they are a continuation of the far-better-than-expected performance in December.

Preliminary figures for December, which became available this week, show total petroleum demand for the month averaged 10,435,000 b/d, making it by far the best month in history. December's demand was 867,000 b/d above the previous monthly peak for 1955, reached in February. December's demand also was 814,000 b/d above the previous December.

* * *

TOTAL DEMAND in all of 1955 averaged 8,755,000 b/d, an increase of 8% over 1954. Crude oil runs to refineries last year averaged 7,478,000 b/d, up nearly 7% over the previous year. Domestic crude oil production averaged 7,370,000 b/d, up 4.9% over 1954, and total imports averaged 1,239,000 b/d, up 17.7%.

WILLIAM G. COPELAND (right) has been named manager of the operations division, and **GEORGE L. BONAR** (left) has been appointed manager of crude oil purchases and sales for The Texas Co. Both men will make their headquarters in New York City. Copeland, general manager of Texaco's Port Arthur works since January, 1954, replaces **Howard S. McCray,** who has been named manager of the purchasing department. Copeland joined Texaco in 1927. Bonar joined Texaco in 1928, and has been assistant to the chairman of the board since November, 1954. **Henry Flynn,** superintendent of manufacturing at Port Arthur since 1953, takes over Copeland's position there; he joined Texaco in 1927. **H. E. Fouts,** assistant to Flynn since 1953, assumes Flynn's position; he joined Texaco in 1931.

GEORGE W. MURPHY has been promoted from district engineer to assistant chief engineer for British-American Oil Producing Co. He will transfer from Houston to Dallas, and work under **Glenn M. Stearns,** chief engineer. **Edmund E. McCurtain,** staff engineer, will temporarily serve as district engineer at Houston.

H. G. SCHAD, vice-president and general manager of transportation for Atlantic Refining Co., will be president of the line recently merged Atlantic Pipe Line Co. Under the merger, Atlantic Pipe Line Co., a Maine corporation operating crude lines in Texas, New Mexico, and Louisiana, and Buffalo Pipe Line Corp., a New York corporation operating products lines in New York state, will be merged into Keystone Pipe Line Co., a Pennsylvania corporation operating products lines in that state, and the name of Keystone changed to Atlantic. Keystone started operating in 1931 and is one of the oldest products lines in the country. In the new company, **J. Harry Wood, Jr.,** will be vice-president in charge of crude lines, and **Robert H. Lynch** will be vice-president in charge of products lines.

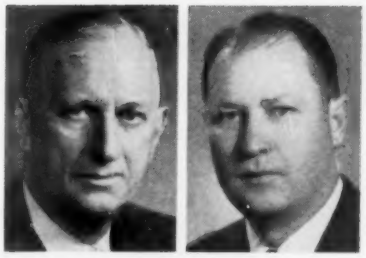
JACK BARR, geologist for Standard Oil Co. of California, has been transferred from the division office at Bakersfield to the exploration office at Seattle, Wash.

R. L. (Leland) REDLINE has resigned as chief geologist for Great Western Drilling Co. to become a petroleum consultant at Midland. Redline joined Great Western in 1948. **Dewey Thornton,** Redline's assistant with Great Western, has been named acting chief geologist.

SAMUEL H. WOODS, chief geologist for Sun Oil Co.'s Mid-Continent division, at Tulsa, has retired after 34 years with the company. Originally, Woods joined Twin State Oil Co., which later became Sun's Mid-Continent division. He served as district and regional geologist before becoming divison geologist. He helped to organize and is a charter member of Sigma Gamma Epsilon, honorary geological fraternity of oil. **Ronald J. Cullen,** assistant division geologist since June, 1954, succeeds Woods. He started with Twin States in 1927.

L. W. CALAHAN has been promoted from division geologist to assistant manager of the Louisiana divison, producing department, of The Texas Co. at New Orleans. Calahan joined Texaco in 1937, and has served as division geologist since 1951. **W. W. Moore, Jr.,** senior geologist of the division, succeeds Calahan as division geologist. He also joined Texaco in 1937, and has been senior geologist of the division since 1953.

THE NEW OFFICERS of the Permian Basin Geophysical Society, Midland, for 1956 are (left to right): **R. Maxey Pinson,** Union Oil Co. of California, first vice-president; **W. A. Seal, Jr.,** Continental Geophysical Co., second vice-president; **Decker Dawson,** Dawson Geophysical Co., president; **Malcolm A. Knock,** Stanolind Oil & Gas Co., secretary, and **R. J. Knott,** Atlantic Refining Co., treasurer.



T. G. SCHAD (left) has been promoted from purchasing agent to executive assistant to the vice-president in charge of the materials department, and **V. W. FLETCHER** (right) has been promoted to purchasing agent at Asiatic Petroleum Corp. Schad has been actively engaged in the purchasing activities of Asiatic since 1920, and has been purchasing agent since 1945. Fletcher, who joined Asiatic in 1950, has been assistant purchasing agent since 1952. **A. Nilsson,** who joined Asiatic in 1928, becomes assistant purchasing agent in Fletcher's place.

CECIL H. GREEN has been elected chairman of the board of Geophysical Service Inc., Dallas and **Fred J. Agnich** succeeds him as president. Green has been with the firm since 1930, and has served as president since 1950; he succeeds **J. Erik Jonsson,** who will devote his full time to duties as president of Texas Instruments, Inc., parent company of Geophysical Service. Agnich has served with the company since 1937, and has been executive vice-president since 1951.

C. M. (Tex) LEVERETT has been appointed chief scout at Los Angeles for Union Oil Co. of California. **Joe Dockwiller,** of Bakersfield, replaces Leverett as division scout at Santa Paula, Calif., and **E. Wilkinson** has been transferred from the company's Santa Maria (Calif.) office to the Bakersfield scouting department.

AARON CAWLEY has resigned as reservoir engineer with Forest Oil Corp., at Midland, to join the consulting firm of Keller & Peterson, at Fort Worth. Before joining Forest, Cawley worked for Honolulu Oil Corp. in the Brownfield-Denver City (Tex.) area.

CHAD L. WILEY, special salesman for Reed Roller Bit Co. at Lovington, N. M., has been transferred to Midland. Wiley has been stationed at Lovington since he joined Reed in 1951.

GEORGE M. GEYER has been promoted to district superintendent for Cities Service Oil Co. at Hobbs, N. M. He has been production foreman at El Dorado, Kan.

FRED A. L. HOLLOWAY has been named general manager of Esso Standard Oil Co.'s East Coast manufacturing division, at Linden, N. J. Formerly assistant general manager of the division, he has also served as general superintendent of Esso's

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Baton Rouge refinery and as assistant general manager of the company's Louisiana division. He succeeds **Charles Leet,** who has been elected a director of Creole Petroleum Corp.

WILLIAM C. HICKEY has resigned as engineer in the gasoline section of Amerada Petroleum Corp's production department at Tulsa to become a petroleum engineer with Standard-Vacuum Oil Co. in Sumatra.

R. C. (Bob) OLIVER, manager of the claims, right-of-way, and property-tax department for Interstate Oil Pipe Line Co., Shreveport, has been elected a director of Chapter 8 of the American Right-of-Way Assn.

J. E. DOWNEY, with Phillips Petroleum Co. since 1942, has been appointed assistant division manager and division landman at Calgary, Alta.

NEWELL C. LOOMIS has been promoted from assistant manager to manager of product supply in the crude oil and products supply department of Gulf Oil Corp., Pittsburgh. He succeeds **R. O. Jenningas,** who has resigned.

M. R. (Russell) HAYES, of Midland, production superintendent for Phillips Petroleum Co.'s Tex-Mex division, has been reappointed chairman of the Oil Industry Information Committee's West Texas area. He will supervise the public information program for the oil and gas industry in 24 counties in 1956.

J. W. WOODS, JR. has joined J. Ray McDermott & Co., Inc., at Houston. He formerly was with Atlantic Refining Co. as a reservoir engineer at Dallas.

WILLIAM C. KRAFVE has resigned as geologist for Mobil Producing Co. at Casper, Wyo., to return to San Antonio as a consultant.

C. H. ATCHISON (left) and **WILLIAM O. CALLAWAY** (right) have been promoted to division managers in the exploration department of British-American Oil Producing Co. Atchison, who has been district manager at Midland since 1952, will take over the newly-formed Texas division, which includes North Texas, West Texas, and southeastern New Mexico. He will continue to maintain headquarters at Midland. Callaway, who has been district manager at Fort Worth, will move to Denver to handle the northwestern divsion, which includes Colorado, Utah, Nebraska, Wyoming, Montana, the Dakotas, and northwestern New Mexico.

WALTER A. HUBER (left), general product manager of the wire rope division of John A. Roebling's Sons Corp., and **JOHN J. PIKE** (right), president of The Republic Supply Co. of California, have announced that Republic is now the distributor for Roebling products in California, Arizona, and Nevada.

THOMAS S. LENNOX has been promoted from assistant manager to manager of the Trenton (Mich.) refinery of Socony Mobil Oil Co. A native of Scotland, Lennox came to U.S. in 1921, and joined Socony in 1930. He succeeds **Samuel G. Keller,** manager of the refinery since 1946, who has retired. Keller joined Socony in 1922 at the White Star Refining Co. at Wood River, Ill.

JOHN W. KISER has been appointed manager of the West Texas district of Lane-Wells Co., at Odessa, replacing **C. E. Shilcutt,** who has been appointed district manager at Houston. Kiser has been with Lane-Wells since 1946.

JACK C. BARCKLOW, geologist from the Oklahoma City office of British-American Oil Producing Co., has temporarily transferred to Amarillo, where he will work with **Jack L. Stanford,** new district geologist there.

J. FRENCH ROBINSON, retired president of Consolidated Natural Gas Co., will join Republic Steel Corp. in an advisory capacity.

H. O. CAMERON, assistant secretary and assistant to the vice-presidents in charge of manufacturing and production for Sun Oil Co., at Toledo, Ohio, has retired after 51 years of service with the company.

W. O. TWAITS, a director since 1950 and a vice-president since 1952, has been named executive vice-president of Imperial Oil, Ltd. **J. A. Cogan,** assistant manager of the manufacturing department, has been made a director. **G. L. Stewart,** chairman of the board of Imperial, has retired after 39 years' service with the company. He was president of Imperial from 1949 to 1953, and served as chairman of the board twice—from 1947 to 1949, and from 1953 until now.

G. A. BELL has resigned from the geophysical department of Sinclair Oil & Gas Co. at Fort Worth to join the consulting firm of Payne & Warren, Fort Worth.

VICTOR C. LARSEN has been appointed manager of the pipeline department of General Petroleum Corp.,

at Los Angeles. Larsen has served 35 years with General Petroleum and, since 1952, has been assistant manager of the department.

THOMAS M. McDONOUGH, assistant petroleum engineer for Ohio Oil Co., has been transferred from Bakersfield Calif., to Chickasha, Okla.

JOSEPH C. VAUGHN, formerly a field engineer for Stanolind Oil & Gas Co.'s research department, has joined Climax Molybdenum Co. at Tulsa as chief engineer of the waterflood division.

ROSS W. CUMMINGS, former newsman for station WKY-TV at Oklahoma City, has been named director of information and public relations for Kerr-McGee Oil Industries, Inc., Oklahoma City.

ROBERT B. KENNEDY has been promoted to store manager at Russell, Kan., for the Oil Well Supply Division of United States Steel Corp.

WOODFORD D. MILLER has been made executive vice-president in charge of eastern operations of Robertshaw-Fulton Controls Co.; he has been vice-president and general manager of the Robertshaw Thermostat Division. Miller has 19 years' service with the company; he will be located at Greensburg, Pa. **Frank H. Post,** assistant vice-president of the division, succeeds Miller. **George Mertz** has been appointed assistant to Post and will be in charge of division manufacturing. **Jean V. Giesler** will retire Feb. 1 as general manager of the Fulton Sylphon Division of the company after 43 years of service. He will continue as a consultant. **Freeman G. Cross,** vice-president, will succeed Giesler as general manager.

GEORGE K. HEINDEL has been named chief pilot for Interstate Oil Pipe Line Co., Shreveport. He formerly was captain pilot-administrative assistant for Creole Petroleum Corp.

RALPH A. CUTHBERTSON (right) has been elected treasurer of Cities Service Oil Co. (Pa.) to replace **WALTER W. MARTIN** (left), who is retiring after 52 years of service. Cuthbertson has been secretary of the company the past 12 years. Martin served Cities Service companies in Colorado, Texas, Ohio, and Pennsylvania before coming to New York in 1933 as treasurer of the Pennsylvania company. **James W. Fry,** office manager of the Philadelphia region since 1950, assumes the duties of company secretary.

WILLIAM F. BATES (left) has been promoted to assistant to the vice-president of Shell Oil Co.'s Pacific Coast area exploration and production office, at Los Angeles, and **ARTHUR L. BROWN** (right) has been named to succeed him as production manager of the coastal division. Bates, with Shell since 1934, has been production manager of the coastal division since 1953. Brown has been in charge of production operations at Shell's Salt Lake City division since 1953.

A. K. REED has been appointed manager of the Duluth (Minn.) sales division of Standard Oil Co. (Ind.); Reed joined Indiana Standard in 1933, and has been sales manager at Mankato, Minn., since 1954. **C. J. Crawford,** acting manager at Duluth since September, now becomes assistant manager of consumer sales. **W. B. Gallagher,** until recently assistant manager of consumer sales at Minneapolis, has been named assistant manager of reseller sales at Duluth.

JOHN GETGOOD has been named senior assistant sales manager for Phillips Petroleum Co. at Bartlesville, Okla. He has served in the Chicago division office and came to Bartlesville in 1952 as assistant sales manager in charge of the eastern half of Phillips' U.S. sales territory. **G. E. Glatfelder,** since 1954 northeastern regional manager at Bartlesville, will succeed Getgood. Glatfelder's successor as northeastern regional manager is **W. O. White. R. W. McBride** has been promoted from divisional manager at Raleigh, N.C., to southeastern regional manager at Bartlesville. **N. W. O'Haver,** assistant divisional manager at Raleigh, will succeed McBride at that city.

ADEN P. WILLIAMS has joined International Petroleum Co., Ltd., as assistant marketing adviser at its Coral Gables (Fla.) office. Before coming to International Petroleum, Williams was manager of consumer and industrial sales for Esso Standard Oil, S. A., at Havana, Cuba.

J. G. PARROTT has been named production manager of Industrial Instrument Corp., Odessa. Parrott worked for Ford Motor Co. for 25 years, and at one time was plant superintendent for Ford's Willow Run (Mich.) plant.

ED MARKS has been employed as a paleontologist by Union Oil Co. of California at its division office at Bakersfield. Marks formerly had been with International Petroleum Co., Ltd., in Peru.

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Just the Facts, Please

Ralph E. Davis, a Houston oil and gas consultant, offered some common-sense advice last week to those who are pressing for passage of the bill to free natural gas products from direct federal control.

Mr. Davis, sometimes called the "father of the gas industry," strongly favors the legislation. But he warns that producers will only hurt their own cause if they make errors in facts or forecasts while urging passage of the Harris bill.

He discounts, for example, the possibility of government "seizure" of producing properties if the bill fails and the gas supply drops. He also points out that there could eventually be a gas shortage regardless of the outcome of the pending legislation.

He says, too, that producers, being human, do sometimes try to "squeeze" higher prices from transmission companies. That's natural, and there's no point in producers disclaiming any interest in getting as high a price as they can get.

Mr. Davis' contention is that the best course is to present the full facts about the situation brought on by the Supreme Court's Phillips case decision. He thinks that's enough.

He has a point there. The facts and the logic are on the side of the producers. They should drive them home with all possible force, while carefully avoiding any questionable claims or counter claims which could be seized upon by the opposition.

The General Gas Committee has just issued a revised fact sheet, which does an excellent job of explaining precisely what the proposed legislation does and does not do. It points out, for example, that the bill gives a protection to the consumers that they never had during the 16 years from the adoption of the Natural Gas Act in 1938 to the Supreme Court's 1954 decision in the Phillips case.

The fact sheet points out that the Harris Bill not only provides consumer safeguards in both new and renegotiated contracts, but goes even further, and protects the consumer as to escalation clauses in existing contracts.

There's a great deal of solid, hard-hitting factual information in the gas committee's fact sheet. It's the sort of thing that proponents of the gas bill should make sure gets widespread circulation.

Who Said 'Giveaway?'

The Dept. of the Interior reports that it took in almost $150-million during the past fiscal year on bonuses, rentals, royalties, and other revenues from its offshore lands. And the agency spent only $120,000 in administering these leases, giving it a return of about $1,250 for each $1 spent.

It would be nice, indeed, if the government got such handsome returns from some of its other vast expenditures. If so, it could start whittling away on the national debt.

At any rate, Interior Secretary Douglas McKay now has a snappy comeback for those who screamed "giveaway" when control of offshore lands was a hot issue.

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